### DETAILED COST MODEL RESULTS FOR THE ADDENDUM TO THE

ASSESSMENT OF THE POTENTIAL COSTS, BENEFITS, & OTHER IMPACTS OF THE HAZARDOUS WASTE COMBUSTION MACT STANDARDS: FINAL RULE (JULY 1, 1999)

### LIST OF EXHIBITS

### (0% Price Pass-Through; PM CEM Option 1: Required for All Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$24	\$3	\$8	\$40	\$7	\$83
Floor (70%)	\$16	\$3	\$8	\$36	\$7	\$69
Rec (50%)	\$26	\$4	\$8	\$44	\$7	\$89
Rec (70%)	\$19	\$4	\$8	\$40	\$7	\$77
BTF-ACI (50%)	\$34	\$5	\$11	\$67	\$27	\$144
BTF-ACI (70%)	\$27	\$5	\$11	\$62	\$26	\$130

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$728,353	\$312,665	\$322,837	\$292,830	\$281,064
Floor (70%)	\$495,465	\$265,102	\$294,313	\$259,041	\$261,146
Rec (50%)	\$773,990	\$394,025	\$323,198	\$321,088	\$281,064
Rec (70%)	\$578,418	\$360,261	\$297,774	\$289,350	\$261,146
BTF-ACI (50%)	\$1,043,019	\$508,367	\$435,023	\$484,470	\$1,061,809
BTF-ACI (70%)	\$818,226	\$464,470	\$411,798	\$447,559	\$1,042,619

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$31	\$37	\$134	\$20,110
Floor (70%)	\$23	\$31	\$129	\$19,447
Rec (50%)	\$33	\$49	\$147	\$20,225
Rec (70%)	\$26	\$45	\$139	\$19,575
BTF-ACI (50%)	\$44	\$66	\$154	\$18,185
BTF-ACI (70%)	\$35	\$59	\$145	\$18,085

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

0%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Floor (50%)	\$728,353	\$312,665	\$298,694	\$313,997	\$281,064
Floor (70%)	\$495,465	\$265,102	\$268,924	\$269,565	\$261,146
Rec (50%)	\$773,990	\$394,025	\$303,414	\$330,878	\$281,064
Rec (70%)	\$578,418	\$360,261	\$277,499	\$288,094	\$261,146
BTF-ACI (50%)	\$1,043,019	\$477,964	\$426,560	\$574,293	\$1,061,809
BTF-ACI (70%)	\$818,226	\$464,470	\$403,222	\$525,451	\$1,042,619

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Baseline	\$74	\$114	\$658	\$36,325
Compliance Costs				
Floor (50%)	\$31	\$37	\$134	\$20,110
Floor (70%)	\$23	\$31	\$129	\$19,447
Rec (50%)	\$33	\$49	\$147	\$20,225
Rec (70%)	\$26	\$45	\$139	\$19,575
BTF-ACI (50%)	\$44	\$66	\$154	\$18,185
BTF-ACI (70%)	\$35	\$59	\$145	\$18,085

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
0	0	8	15	10
0	0	8	3	0
3	1 ,	1	1	20
48	13	11	11	56
	0	0 0 3 1	0 0 8 1 1	0 0 8 3 3 1 1 1

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

	<0%	0% - 10%	11% - 25%	26% - 50%	>50%
Cement Kilns	0	0	0	2	31
LWA Kilns	0	0	0	0	10
Commercial Incinerators	. 3	0	3	8	13
On-site Incinerators	48	8	24	19	40

- 1. Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- 2. Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

	Fi	Floor(50%)	Floor(70%)	Rec(50%)	Rec(70%) BTI	BTF-ACI(50%) BTF-ACI(70%	F-ACI(70%	
Cemer	Cement Kilns							
	New Fabric Filters	33%	27%	33%	27%	61%	52%	
	New LEWS	%0	%0	%0	%0	%0	%0	
	New IWS	%0	%0	%0	%0	%0	%0	
	New Carbon Injection	%0	%0	%0	%0	45%	36%	
	New Carbon Bed	%0	%0	%0	%0	%0	%0	
	New Quencher	45%	33%	45%	33%	39%	30%	
,	New Afterburner	%0	%0	%0	%0	%0	%0	
	New Reheater	%0	%0	%0	%0	%0	%0	
	Fabric Filter DOM, small	3%	3%	3%	3%	%0	%0	
	Fabric Filter DOM, mod	%6	%9	%6	%9	%9	%9	
	DESP DOM, small	%9	%0	%9	%0	3%	%0	
	DESP DOM, mod	%0	%0	%0	%0	%0	%0	
	WESP DOM, small	%0	%0 0	%0	%0	%0	%0	
	WESP DOM, mod	%0	%0	%0	%0	%0	%0	
	IWS DOM small	%0	%0	%0	%0	%0	%0 0	
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	HEWS DOM small	%0	%0	%0	%0	%0	%	
	HEWS DOM mod	%0	%0	%0	%0	%	%0	
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	LEWS DOM, mod	%0	%0 0	%0	%0	%0	%0 0	
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	New DS	%0	%0	%0	%0	%0	%0	
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	None	12%	27%	3%	21%	3%	18%	
WAK								
	Non	%0	%0	%0	%0	83%	50%	
•	New LEWS	%0	%0	%0	% % o o	%	%00	
	New IWS	%0	%0	%0	%0	%0 0	%0	
	New Carbon Injection	%0	%0	%0	%0	63%	20%	
	New Carbon Bed	%0	%0 0	%0	%0	%0	%0	
	New Ouencher	88%	88%	88%	88%	20%	20%	
	New Afferbliner	%0	%0	%0	%0	%0	%0	
	New Reheater	%0	%0	%0	%0	%0	%0	
	Fabric Filter DOM, small	25%	13%	25%	13%	13%	%0	
	Fabric Filter DOM. mod	13%	%0	13%	%0	%0	%0	
	DESP DOM. small	%0	%0	%0	%0	%0	%0	
	DESP DOM, mod	%0	%0	%0	%0	%0	%0	
	WESP DOM, small	%0	%0	%0	%0	%0	%0	
	WESP DOM, mod	%0	%0	%0	%0	%0	%0	
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## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

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sed 38% 47% 28% 29% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10	New Carbon Bach         38%         47%         28%         29%         10%           New Quencher         0%         0%         0%         0%         0%           New Attendment         0%         0%         0%         0%         0%           New Reheater         0%         0%         0%         0%         0%           Pabric Filter DOM, small         1%         1%         1%         0%         0%           DESP DOM, small         0%         0%         0%         0%         0%           DESP DOM, small         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0%         0%           WS DOM, mod         0%         0%         0%         0%         0%           WS DOM, small         0%         0%         0%         0%         0%           HEWS DOM, mod         0%         0%         0%         0%         0%           LEWS DOM, mod         0%         0%         0%         0%         0%           LEWS DOM, mod         0%         0%         0%         0%         0%           LEWS DOM, small         0% <td< td=""><td></td><td>New Carbon Injection</td><td>%000</td><td>200</td><td>800</td><td>8 8</td><td>%10</td><td>0, 72</td><td></td></td<>		New Carbon Injection	%000	200	800	8 8	%10	0, 72	
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(Wd Z	un-99 (06:05:47 PM)	•	Total	100%	100%	100%	100%	100%	100%	
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## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE, cont. (Before Consolidation)

-ACI(70%	000 000 000 000 000 000 000 000 000 00	% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	212 200 200 200 200 200 200 200 200 200
-ACI(50% BTF	\$ 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	28 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 20 20 20 20 20 20 20 20 20
Rec(70%) BTF	## ## ## ## ## ## ## ## ## ## ## ## ##	84 80 80 80 80 80 80 80 80 80 80	213 00%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
ec(50%) Re	\$00 \$00 \$00 \$00 \$00 \$00 \$00 \$00 \$00 \$00	00 00 00 00 00 00 00 00 00 00	22 00 00 00 00 00 00 00 00 00 00 00 00 0
Floor(70%) Re	000 000 000 000 000 000 000 000 000 00	46 00 00 00 00 00 00 00 00 00 00 00 00 00	27 00 00 00 00 00 00 00 00 00 00 00 00 00
oor(50%) Flc	0.000 0.000	66000000000000000000000000000000000000	00 00 00 00 00 00 00 00 00 00
	Commercial Incinerators New Fabric Filters New LEWS New WE New Carbon Injection New Carbon Bed New Carbon Med New Carbon Bed New Carbon Med New Carbon Med New Carbon Med New Carbon Med New Carbon Car	On-Site Incinerators  New Fabric Fillers  New We LEWS  New We LEWS  New Carbon Injection  New Carbon Bed  New Carbon Bed  New Carbon Bed  New Afferburner  New Afferburner  New Afferburner  New Afferburner  New Afferburner  New Afferburner  New Rehader  Fabric Filler DOM, mod  DESP DOM, small  Fabric Filler DOM, mod  DESP DOM, small  NESP DOM, small  NWS DOM, mod  HEWS DOM, mod  HEWS DOM, mod  LEWS DOM, small  LEWS DOM, mod  New DS  Feed Control	Government On-Site Incinerators New Teath Effers New LEWS New Wide New Wide New Wordshon Bed New Carbon Injection New Carbon Bed New Carbon Bed New Atenbumer New Atenbumer New Atenbumer New Reheater Fabric Filter DOM, small Tabric Filter DOM, small DESP DOM, small NeSP DOM, small WESP DOM, small LEWS DOM, small LEWS DOM, small LEWS DOM, small CEWS DOM, small MEWS DOM, small MEWS DOM, small CEWS DOM, small FEWS DOM, small

# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

	Cement Kilns	t Kilns	LWAKs	4Ks	Commercial Incinerators	ncinerators		On-site Incinerators	inerators	
	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% below	>20% below	<20% below	<20% below >20% below
Floor (50%)	%0	3%	, %0	%0	10%	10%	%0	31%	4%	40%
Floor (70%)	%0	3%	%0	%0	10%	10%	2%	29%	4%	40%
Rec (50%)	%0	%9	%0	%0	10%	10%	%0	31%	4%	40%
Rec (70%)	%0	%9	%0	%0	10%	10%	2%	29%	4%	40%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	2%	33%	8%	46%
BTF-ACI (70%)	%0	%9	%0	. 25%	10%	10%	2%	31%	8%	46%

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

%0

		Cement Kilns			LWAKs		Com	Commercial Incinerators	ators	Privat	Private On-site Incinerators	erators
	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below
		-										
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%09	%0	40%
Floor (70%)	100%	%0 ,	%0	100%	%0	%0	%06	%0	10%	%09	%0	40%
Rec (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%09	%0	40%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%09	%0	40%
BTF-ACI (50%)	100%	<b>%0</b>	%0	%88	%0	13%	%06	%0	10%	54%	%0	46%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	54%	%0	46%

short term baseline break-even quantity:	%0	%0	10%	15%
. Percent of systems currently not meeting short term baseline break-even quantity:	Cement Kilns	LWAKs	Commercial Incinerators	Private On-site Incinerators

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

%0

		Cement Kilns			LWAKs		Com	Commercial Incinerators	ators	Private	Private On-site Incinerators	erators
	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below
	THE RESERVE OF THE PERSON NAMED IN COLUMN 1										residence of the control of the cont	
Floor (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	%09
Floor (70%)	%26	%0	3%	100%	%0	%0	%06	<b>%</b> 0	10%	20%	%0	20%
Rec (50%)	94%	%0	%9	100%	%0	%0	%06	%0	10%	20%	%0	20%
Rec (70%)	94%	%0	%9	100%	%0	%0	%06	%0	10%	20%	%0	20%
BTF-ACI (50%)	94%	%0	%9	75%	%0	25%	%06	%0	10%	42%	%0	28%
BTF-ACI (70%)	94%	%0	%9	%88	%0	13%	%06	%0	10%	46%	%0	54%

Percent of systems currently not meeting long term baseline break-even quantity: Cement Kilns

Notes:

0% 10% 35%

LWAKs Commercial Incinerators Private On-site Incinerators

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### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

0%

Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
\$24	\$3	\$7	\$26	\$7	\$67	-19%
\$16	\$3	\$6	\$22	\$7	\$54	-22%
\$26	\$4	\$7	\$27	\$7	\$71	-21%
\$19	\$4	\$6	\$24	\$7	\$59	-23%
\$34	\$4	\$10	\$43	\$27	\$118	-18%
\$27	\$5	\$9	\$39	\$26	\$106	-18%
	\$24 \$16 \$26 \$19 \$34	Kilns         Kilns           \$24         \$3           \$16         \$3           \$26         \$4           \$19         \$4           \$34         \$4	Kilns         Kilns         Incinerators           \$24         \$3         \$7           \$16         \$3         \$6           \$26         \$4         \$7           \$19         \$4         \$6           \$34         \$4         \$10	Kilns         Kilns         Incinerators         Incinerators           \$24         \$3         \$7         \$26           \$16         \$3         \$6         \$22           \$26         \$4         \$7         \$27           \$19         \$4         \$6         \$24           \$34         \$4         \$10         \$43	Kilns         Kilns         Incinerators         Incinerators         On-Sites           \$24         \$3         \$7         \$26         \$7           \$16         \$3         \$6         \$22         \$7           \$26         \$4         \$7         \$27         \$7           \$19         \$4         \$6         \$24         \$7           \$34         \$4         \$10         \$43         \$27	Kilns         Kilns         Incinerators         Incinerators         On-Sites         Total           \$24         \$3         \$7         \$26         \$7         \$67           \$16         \$3         \$6         \$22         \$7         \$54           \$26         \$4         \$7         \$27         \$7         \$71           \$19         \$4         \$6         \$24         \$7         \$59           \$34         \$4         \$10         \$43         \$27         \$118

- Compliance costs after consolidation include only the costs for those systems that will continue to burn
  waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning waste on-site.
- Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### Price pass through assumed:

0%

Option	On-site Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	\$6.03
BTF-ACI (70%)	\$6.03

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS

### (millions) (Includes Cost of Waste Diversion)

Price pass through assumed:

0%

Option	Total	
Floor (50%)	\$67	
Floor (70%)	\$54	
Rec (50%)	\$71	
Rec (70%)	\$60	
BTF-ACI (50%)	\$124	
BTF-ACI (70%)	\$112	

- Compliance costs after consolidation include the costs for those systems that will continue to burn
  waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop
  burning wastes do not incur compliance costs and therefore are excluded.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specfic firm's marginal tax bracket.
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

0%

. '	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0 .	0	3,170	59,780	62,950	2%
BTF-ACI (70%)	0	0	3,170	59,780	62,950	2%

- Combusted hazardous waste reported to BRS in 1995
   excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	97,760	100,930	3%
Floor (50%)	11,530	0	3,170	111,330	126,030	4%
Floor (70%)	11,530	0	3,170	111,330	126,030	4%
Rec (50%)	28,490	0	3,170	111,330	142,990	4%
Rec (70%)	28,490	0	3,170	111,330	142,990	4%
BTF-ACI (50%)	28,490	7,380	3,170	199,820	238,860	7%
BTF-ACI (70%)	28,490	2,730	3,170	170,050	204,440	6%

- Combusted hazardous waste reported to BRS in 1995
   excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assur	rice	pass	through	assumed:
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0%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$31	\$37	\$17	\$33
Floor (70%)	\$23	\$31	\$14	\$33 \$29
Rec (50%)	\$33	\$49	\$17	\$34
Rec (70%)	\$26	\$45	\$15	\$30
BTF-ACI (50%)	\$44	\$51	\$21	\$36
BTF-ACI (70%)	\$35	\$59	\$19	\$33

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burnin	ng Waste			
Floor (50%)	0	0	0	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	0	16
BTF-ACI (50%)	0	0	0	23
BTF-ACI (70%)	0	0	0	23

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	42
Incremental Facilities Likely to Stop Burnir	ng Waste			
Floor (50%)	1	0	0	13
Floor (70%)	1	0	0	13
Rec (50%)	2	0	. 0	13
Rec (70%)	2	0	0	13
BTF-ACI (50%)	2	0	0	23
BTF-ACI (70%)	2	0	0	20

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
0%	0%	13%	24%
0%	0%	0%	15%
0%	0%	0%	15%
0%	0%	0%	15%
0%	0%	0%	15%
0%	0%	0%	21%
0%	0%	0%	21%
	0% 0% 0% 0% 0% 0%	Kilns         LWAKs           0%         0%           0%         0%           0%         0%           0%         0%           0%         0%           0%         0%           0%         0%	Kilns         LWAKs         Incinerators           0%         0%         13%           0%         0%         0%           0%         0%         0%           0%         0%         0%           0%         0%         0%           0%         0%         0%           0%         0%         0%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

₹				
	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning pelow break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	6%	0%	0%	12%
Rec (50%)	11%	0%	0%	12%
Rec (70%)	11%	0%	0%	12%
BTF-ACI (50%)	11%	0%	0%	21%
BTF-ACI (70%)	11%	0%	0%	18%
				,

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

0%

MACT Option		nent Ins	LW	AKs	į.	nercial erators		-site erators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	0	0	131	252	131	252
Floor (70%)	0	0	0	0	0	0	131	252	   131	252
Rec (50%)	0	0	0	0	0	0	131	252	   131	252
Rec (70%)	0	0	0	0	0	0	131	252	   131	252
BTF-ACI (50%)	0	0	0	3	0	0	147	276	   147	278
BTF-ACI (70%)	0	0	0	0	0	0	147	276	   147 	276
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			1		1					
				<u> </u>					. *	

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

0%

MACT Option		nent Ins	LW	AKs		nercial erators		site rators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0	0	98	116	119	137
Floor (70%)	21	21	0	0	0	0	98	116	119	137
Rec (50%)	42	42	l 0	0	0	0	98	116	140	158
Rec (70%)	42	42	l 0	0	0	0	98	116	140	158
BTF-ACI (50%)	42	42	l 0 -	5	0	0	145	177	187	224
BTF-ACI (70%)	42	42	l 0	3	0	0	124	132	166 1	177
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	e.				1		1			

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	5	10	30	5	127
CEMs/Monitoring Equipment	25	6	14	56	29	130
Labor Within Combustion Sector						
O&M	50	4	9	80	8	152
Permitting	1	0	1	4	1	7
Total	153	16	34	169	43	416

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Flr(70%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	stry					
Pollution Control Equipment	51	5	8	26	5	95
CEMs/Monitoring Equipment	25	6	14	55	29	128
Labor Within Combustion Sector						
O&M	35	4	8	72	7	126
Permitting	1	0	1	3	, 1	7
Total	113	15	30	157	42	357

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates.
   Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	77	7	12	36	5	137
CEMs/Monitoring Equipment	25	6	14	54	29	128
Labor Within Combustion Sector						
O&M	50	5	13	95	8	171
Permitting	1	0	1	3	1	7
Total	153	19	40	188	43	443

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	6	10	33	5	105
CEMs/Monitoring Equipment	25	6	14	52	29	126
Labor Within Combustion Sector						
O&M	35	5	12	86	7	146
Permitting	1	0	1	3	1	7
Total	113	17	37	174	42	384

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	99	8	22	80	13	222
CEMs/Monitoring Equipment	25	5	15	56	29	129
Labor Within Combustion Sector						
O&M	84	14	35	179	24	337
Permitting	1	0	1	4	1	. 7
Total	209	27	73	319	67	696

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	78	9	20	69	13	188
CEMs/Monitoring Equipment	25	6	14	56	29	130
Labor Within Combustion Sector						
O&M	67	14	35	157	22	295
Permitting	1	0	1	4	1	7
Total	171	29	71	285	65	621

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators					
Current weighted average price	\$172	\$136	\$689	\$729					
Increase in price due to compliance costs passed through									
Floor (50%)	\$0	\$0	\$0	\$0					
Floor (70%)	\$0	\$0	<b>\$</b> 0	\$0					
Rec (50%)	\$0	\$0	\$0	\$0					
Rec (70%)	\$0	\$0	\$0	\$0					
BTF-ACI (50%)	\$0	\$0	\$0	\$0					
BTF-ACI (70%)	\$0	\$0	\$0	\$0					

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

PRELIMINARY ECONOMIC IMPACT RESULTS

NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

		Č	Cement Kilns	,,	-		_	LWAKs				Commer	Commercial Incinerators	ators			On-site	On-site Incinerators	ors			Gover	Government On-sites	-sites	
_	10%	10-20%	21-50%	<10% 10-20% 21-50% 51-75% >75%		<10% 10-20% 21-50%	10-20%		51-75%	>75%	<10%	<10% 10-20% 21-50%	21-50% 8	51-75%	>75%	<10%	<10% 10-20% 21-50%	21-50%	51-75%	>75%	<10%	10-20% 21-50%		51-75%	>75%
										F					_										
Floor (50%) 1	15%	<b>%</b> 6	39%	24%	12%	%0	25%	%09	25%	%0	%08	10%	10%	%0	%0	33%	21%	37%	%9	4%	24%	14%	43%	10%	10%
Floor (70%) 3	30%	%6	36%	21%	3%	13%	13%	%09	25%	%0	%58	2%	10%	%0	%0	38%	25%	27%	%9	4%	33%	14%	33%	2%	14%
Rec (50%)	3%	21%	36%	21%	18%	%0	%0	75%	25%	%0	%08	10%	10%	%0	%0	27%	19%	48%	%0	%9	24%	14%	43%	10%	10%
Rec (70%) 2	27%	12%	30%	24%	%9	%0	%0	%92	25%	%0	%58	10%	2%	%0	%0	33%	23%	38%	2%	4%	33%	14%	33%	2%	14%
BTF-ACI (50%)	3%	%9	30%	30%	30%	%0	%0	38%	38%	25%	%09	30%	10%	%0	%0	13%	25%	46%	%8	8%	19%	10%	33%	24%	14%
BTF-ACI (70%) 2	21%	%9	15%	36%	21%	%0	%0	38%	20%	13%	%02	25%	2%	%0	%0	15%	31%	38%	10%	%9	24%	14%	24%	19%	19%

Compliance costs as a percent of baseline costs = ITotal annual compliance costs/Total annual baseline costs]
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

		es Ce	Cement Kilns				_	LWAKs				Comme	Commercial Incinerators	ators			On-	On-site Incinerators	ors	
:	<10%	<10% 10-20% 21-50%	21-50%	51-75% >75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%
Floor (50%)	39%	30%	30%	%0	%0	13%	%09	38%	%0	%0	%06	%0	%0	%0	10%	48%	13%	10%	15%	13%
Floor (70%)	61%	18%	21%	%0	%0	72%	%09	25%	%0	%0	%06	%0	%0	2%	%9	52%	10%	10%	19%	10%
Rec (50%)	39%	30%	30%	%0	%0	%0	25%	75%	%0	%0	%06	%0	%0	2%	2%	48%	13%	12%	12%	15%
Rec (70%)	52%	27%	21%	%0	%0	%0	75%	75%	%0	%0	%06	%0	%0	%9	%9	52%	10%	12%	15%	12%
BTF-ACI (50%)	24%	27%	45%	3%	%0	. %0	13%	63%	25%	%0	%06	%0	%0	%9	%9	37%	10%	19%	23%	12%
BTF-ACI (70%)	36%	24%	36%	3%	%0	%0	13%	%52	13%	%0	%06	%0	%0	2%	2%	37%	21%	12%	19%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy sawings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

### CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

%

		Cement Kilns			LWA Kilns		_	Commercial Incinerators		ō	On-site Incinerators	_
Options	S Change	rofit Margin % Change	% Margin after the Rule	- 69	Operating Profit Margin Change % Change	% Margin after the Rule	\$ Change	Operating Profit Margin % Change	% Margin after the Rule	Operating F \$ Change	Operating Profit Margin	% Margin after the Rule
Floor (50%)	(\$22)	-16%	%89	(\$37)	45%	37%	(\$17)	%4~	26%	(\$33)	%8-	%29
Floor (70%)	(\$15)	-11%	72%	(\$31)	-35%	42%	(\$14)	-3%	26%	(\$28)	%1-	63%
Rec (50%)	(\$22)	-16%	%89	(\$49)	-55%	78%	(\$17)	4%	26%	(\$34)	%8-	%29
Rec (70%)	(\$16)	-12%	71%	(\$45)	-51%	32%	(\$15)	4%	%99	(\$30)	%8-	%29
BTF-ACI (50%)	(\$47)	-34%	53%	(\$51)	-51%	36%	(\$21)	-5%	22%	(\$36)	-8%	64%
BTF-ACI (70%)	(\$32)	-25%	61%	(\$28)	%89-	21%	(\$19)	%9-	26%	(\$33)	% <del>8</del> -	64%

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost per ton). Assumed price pass-through using the combustion systems expected to remain burning hazardous waste even though the original pass-through value included some systems expected to remain burning hazardous waste even though the road present of the impetus combustors have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste.

 Operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
 Percentage Operating profits are average operating profits per fon / (weighted average price per ton + assumed price increase due to compliance costs passed through). Percentage profit margin after the rule is calculated using the same formula with post-rule operating profits and prices.
 Change in operating profits per ton - a baseline operating profits per ton. Percentage change in operating profits margin. Baseline operating profits margin. Baseline operating profits margin. Baseline operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin after the rule by one plus the percentage change in the operating profit margin. For consistency, baseline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### LIST OF EXHIBITS

### (0% Price Pass-Through; PM CEM Option 2: Not Required for Any Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$22	<b>\$</b> 3	\$7	\$33	\$4	\$69
Floor (70%)	\$15	\$2	\$6	\$28	\$4	\$55
Rec (50%)	\$24	\$3	\$7	\$37	\$4	\$75
Rec (70%)	\$17	\$3	\$6	\$32	\$4	\$63
BTF-ACI (50%)	\$33	\$5	\$10	\$59	\$24	\$130
BTF-ACI (70%)	\$25	\$4	\$9	\$54	\$24	\$116

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

<u>Options</u>	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$677,373	\$260,252	\$267,273	\$237,552	\$179,565
Floor (70%)	\$444,485	\$212,689	\$238,749	\$203,763	\$159,648
Rec (50%)	\$723,010	\$341,613	\$267,634	\$265,811	\$179,565
Rec (70%)	\$527,438	\$307,849	\$242,210	\$234,073	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$379,459	\$429,193	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$356,234	\$392,281	\$941,121

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

<u>Options</u>	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$29	\$30	\$116	\$17,853
Floor (70%)	\$21	\$24	\$111	\$17,190
Rec (50%)	\$31	\$42	\$129	\$17,968
Rec (70%)	\$23	\$38	\$121	\$17,318
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Baseline	\$74	\$114	\$658	\$36,325
Compliance Costs				
Floor (50%)	\$29	\$30	\$116	\$17,853
Floor (70%)	\$21	\$24	\$111	\$17,190
Rec (50%)	\$31	\$42	\$129	\$17,968
Rec (70%)	\$23	\$38	\$121	\$17,318
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

	<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
Cement Kilns	0	0	8	15	10
LWA Kilns	0	0	8	3	0
Commercial Incinerators	3	1	1	, <b>1</b>	20
On-site Incinerators	48	13	11	11	56

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

<0%	0% - 10%	11% - 25%	26% - 50%	>50%
0	0	0	2	31
0	0	0	0	10
3	0	3	8	13
48	8	24	19	40
	0 0 3	0 0 0 0 3 0	0 0 0 0 0 0 3 0 3	0       0       0       2         0       0       0       0         3       0       3       8

- Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) - total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- 2. Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- 5. Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

BTF-ACI(70%	52% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00 00 00 00 00 00 00 00 00 00 00 00 00
TF-ACI(50%)	61% 00% 39% 00% 00% 00% 00% 00% 00% 00% 00% 00% 0	63 63 63 63 63 63 63 63 63 63 63 63 63 6
Rec(70%) E	27% 0 % 3 3 3 % 0 % 0 % 0 % 0 % 0 % 0 % 0 % 1 2 % 2 1 %	00% 00% 13% 00% 00% 00% 00% 00% 00% 00% 00% 00%
Rec(50%)	860 870 870 870 870 870 870 870 87	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Floor(70%)	27% 0 % 0 % 33 % 0 % 0 % 0 % 0 % 1 % 2 % 2 % 2 %	0000088 0000088 0000000000000000000000
Floor(50%)	86 80 80 80 80 80 80 80 80 80 80 80 80 80	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	New Fabric Filters New LEWS New USS New WS New Carbon Injection New Carbon Bed New Carbon Bed New Afterburner New Afterburner New Afterburner New Afterburner New Afterburner New Afterburner New Carbon Bod New Carbon Bod New Carbon Bod New Carbon Bod New Bod DESP DOM, small WS DOM, small WS DOM, small WS DOM, small WS DOM, small LEWS DOM, small REWS DOM, small	New Fabric Filters New LEWS New IWS New WS New Carbon Injection New Carbon Bed New Quencher New Quencher New Afterburner New Reheater Fabric Filter DOM, mod DESP DOM, small DESP DOM, small WSP DOM, small WS DOM, mod IWS DOM, small IWS DOM, small LEWS DOM, small New DS Feed Control
	Cement Kiins New	LWAKS

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### PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES cont. (Before Consolidation)

11			
			. •
-ACI(70%	6000 B00 B00 B0 B0000000000000000000000	E 0 0 0 0 0 0 1 0 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	66 66 67 68 68 68 68 68 68 68 68 68 68 68 68 68
ACI(50%) BTF	00000000000000000000000000000000000000	08 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	86 8,00 8,00 8,00 8,00 8,00 8,00 8,00 8,
c(70%) BTF-,	## ## ## ## ## ## ## ## ## ## ## ## ##	00 8,2,2,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,4,	420 600 600 600 600 600 600 600 6
c(50%) Re	### ##################################	£ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 80 80 80 80 80 80 80 80 80 8
or(70%) Re	\$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$	80000000000000000000000000000000000000	40 8,00 8,
or(50%) Floo	65 65 65 65 65 65 65 65 65 65	\$	200 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
FIo	Commercial Incinerators  New Fabric Filters  New Carbon New Carbon Bed  New Carbon Bed  New Afterburner  New Sp DOM, mod  HEWS DOM, mod  HEWS DOM, mod  HEWS DOM, mod  LEWS DOM, mod  LEWS DOM, mod  LEWS DOM, mod  LEWS DOM, small  KEWS DOW, small	On-Site Incinerators New Fabric Filters New Levys New WS New WS New Carbon Injection New Carbon Bed New Carbon Bed New Afterburner New Stoom, small Fabric Filter DOM, small NWSS DOM, small NWSS DOM, small NWSS DOM, small NWS DOM, small HEWS DOM, small HEWS DOM, small LEWS DOM, mod Combination DOM New DS Feed Control	Government On-site Incinerators New Fabric Fillers New LEWS New WS New WS New Carbon Injection New Carbon Injection New Carbon Injection New Carbon Injection New Afterburer New Refrow, small Fabric Filler DOM, small DESP DOM, small WESP DOM, small WESP DOM, small WESP DOM, small WESP DOM, small HEWS DOM, small LEWS DOM, mod Combination DOM New DS Feed Control

## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

BTF-ACI(70%	39% 00% 00% 00% 00% 00% 00%	0% 0% 0% 100%	%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	0% 0% 0% 30% 30% 100%
BTF-ACI(50% BT	860040600000000000000000000000000000000	0% 0% 0% 100%	2,2 2,0 3,1 3,1 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0	0% 0% 0% 0% 0% 10%
Rec(70%) BT	30 00 00 00 00 00 00 00 00 00 00 00 00 0	00% 00% 00% 00% 00%	7,000 7,000	0% 0% 0% 0% 0% 10% 100%
Rec(50%)	33% 0000% 00% 00% 00% 00% 00% 00%	0% 0% 0% 100%	, , , , , , , , , , , , , , , , , , ,	0% 0% 0% 0% 138% 10%
Floor(70%)	%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	0% 0% 0% 0% 30% 100%	% % % % % % % % % % % % % % % % % % %	0% 0% 0% 0% 0% 0% 100%
Floor(50%)	35 80 80 80 80 80 80 80 80 80 80 80 80 80	0% 0% 0% 100%	00000000000000000000000000000000000000	0% 0% 0% 0% 0% 0% 100%
	Kilns New Eabric Filters New LEWS New Was New Carbon Injection New Carbon Bed New Garbon Bed New Afterburner New Afterburner New Afterburner New Reheater Fabric Filter DOM, small Fabric Filter DOM, mod DESP DOM, small WESP DOM, small	HEWS DOM, mod LEWS DOM, small LEWS DOM, mod Combination DOM New DS Feed Control Total	New Fabric Filters New LEWS New IWS New Carbon Injection New Carbon Bed New Quencher New Afterburner New Reheater Fabric Filter DOM, small DESP DOM, small DESP DOM, small	WESP DOM, mod IWS DOM, small IWS DOM, small HEWS DOM, small HEWS DOM, small LEWS DOM, mod Combination DOM New DS Feed Control Total Iun-99 (06:24:36 PM)
	Cement Kiins New	LWAKS		WESP DOM, mod IWS DOM, small IWS DOM, small IWS DOM, small IWS DOM, small HEWS DOM, small HEWS DOM, small LEWS DOM, small LEWS DOM, small LEWS DOM, mod Combination DOM, mod Combination DOM New DS Feed Control Total Total Total C:MYLIVELIACOMBUSTINEIA8_D12.WB1
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# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

	Cement Kilns	Kilns	LWAKs	Ks	Commercial Incinerators	ncinerators		On-site Incinerators	inerators	
	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% below	<20% below >20% below	<20% below	<20% below >20% below
•					_					-
Floor (50%)	%0	3%	%0	%0	10%	10%	10%	21%	4%	38%
Floor (70%)	%0	3%	%0	%0	10%	10%	10%	21%	2%	38%
Rec (50%)	%0	%9	%0	%0	10%	10%	10%	21%	4%	38%
Rec (70%)	%0	%9	%0	%0	10%	10%	10%	21%	2%	38%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	10%	23%	12%	42%
BTF-ACI (70%)	%0	%9	%0 ·	13%	10%	10%	12%	21%	12%	42%

# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

	Cement Kilns	Kilns	LWAKs	Ks	Commercial Incinerators	ncinerators		On-site Incinerators	inerators	
	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% below	<20% below >20% below	<20% below	<20% below >20% below
•					_					-
Floor (50%)	%0	3%	%0	%0	10%	10%	10%	21%	4%	38%
Floor (70%)	%0	3%	%0	%0	10%	10%	10%	21%	2%	38%
Rec (50%)	%0	%9	%0	%0	10%	10%	10%	21%	4%	38%
Rec (70%)	%0	%9	%0	%0	10%	10%	10%	21%	2%	38%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	10%	23%	12%	42%
BTF-ACI (70%)	%0	%9	%0 ·	13%	10%	10%	12%	21%	12%	42%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

0%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
Floor (50%)	\$22	\$3	\$6	\$22	\$4	\$57	-17%
Floor (70%)	\$15	\$2	\$5	\$18	\$4	\$44	-20%
Rec (50%)	\$24	\$3	\$6	\$23	\$4	\$61	-19%
Rec (70%)	\$17	\$3	\$5	\$20	\$4	\$50	-21%
BTF-ACI (50%)	\$33	\$4	\$9	\$39	\$24	\$108	-17%
BTF-ACI (70%)	\$25	\$4	\$8	\$37	\$24	\$98	-16%

- Compliance costs after consolidation include only the costs for those systems that will continue to burn
  waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning waste on-site.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket
- "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### Price pass through assumed:

0%

	Option	On-site Incinerators	
,	Floor (50%)	\$0.19	
	Floor (70%)	\$0.19	
	Rec (50%)	\$0.19	
	Rec (70%)	\$0.19	
	BTF-ACI (50%)	\$6.03	
	BTF-ACI (70%)	\$2.27	

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS

### (millions)

### (Includes Cost of Waste Diversion)

Price pass through assumed:

0%

Option	Total	
Floor (50%)	\$57	
Floor (70%)	\$44	
Rec (50%)	\$61	
Rec (70%)	\$50	
BTF-ACI (50%)	\$114	
BTF-ACI (70%)	\$100	

- Compliance costs after consolidation include the costs for those systems that will continue to burn
  waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop
  burning wastes do not incur compliance costs and therefore are excluded.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

0%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
	X.				
Floor (50%)	\$677,373	\$260,252	\$243,257	\$251,839	\$179,565
Floor (70%)	\$444,485	\$212,689	\$213,488	\$210,100	\$159,648
Rec (50%)	\$723,010	\$341,613	\$247,977	\$267,697	\$179,565
Rec (70%)	\$527,438	\$307,849	\$222,062	\$227,506	\$159,648
BTF-ACI (50%)	\$992,039	\$425,347	\$371,123	\$506,190	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$347,785	\$465,008	\$941,121

Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

0%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$29	\$30	\$14	\$28
Floor (70%)	\$21	\$24	\$11	\$24
Rec (50%)	\$31	\$42	\$14	\$29
Rec (70%)	\$23	\$38	\$12	\$25
BTF-ACI (50%)	\$41	\$46	\$18	\$33
BTF-ACI (70%)	\$33	\$53	\$16	\$35

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

%0

1		Cement Kilns			LWAKs	-	Com	Commercial Incinerators	ators	Privat	Private On-site Incinerators	erators
	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below
											·	
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%89	%0	37%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Rec (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
BTF-ACI (50%)	100%	%0	%0	%88	%0	13%	%06	%0	10%	26%	%0	44%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	28%	%0	45%

<ol> <li>Percent of systems currently not meeting short term baseline break-even quantity:</li> </ol>	%0	%0	10%	15%
<ol> <li>Percent of systems currently not meet</li> </ol>	Cement Kilns	LWAKs	Commercial Incinerators	Private On-site Incinerators

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

%0

		Cement Kilns			LWAKs		Com	Commercial Incinerators	rators	Private	Private On-site Incinerators	rators
	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below
Floor (50%)	%16	%0	3%	100%	%0	%0	%06	.%0	10%	20%	%0	20%
Floor (70%)	%16	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	20%
Rec (50%)	94%	%0	<b>%9</b>	100%	%0	%0	%06	%0	10%	%09	%0	%09
Rec (70%)	94%	%0	%9	100%	%0	%0	%06	%0	10%	20%	%0	20%
BTF-ACI (50%)	94%	%0	%9	75%	%0	75%	%06	%0	10%	44%	%0	26%
BTF-ACI (70%)	94%	%0	%9	%88	%0 ·	13%	%06	%0	10%	46%	%0	54%

Notes:

Percent of systems currently not meeting long term baseline break-even quantity:
 Cement Kilns 0%
 LWAKs 0%
 Commercial Incinerators 10%
 Private On-site Incinerators 35%

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

-	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burnir	ng Waste			
Floor (50%)	0	0	0	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	<b>0</b>	16
BTF-ACI (50%)	0	0	0	23
BTF-ACI (70%)	0	0	0	20

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	42
Incremental Facilities Likely to Stop Burnir	ng Waste			
Floor (50%)	1	0	0	13
Floor (70%)	1	0	0	13
Rec (50%)	2	0	0	13
Rec (70%)	2	0	0	13
BTF-ACI (50%)	2	0	0	20
BTF-ACI (70%)	2	0	0	20

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	21%
BTF-ACI (70%)	0%	0%	0%	18%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning pelow break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	6%	0%	0%	12%
Rec (50%)	11%	0%	0%	12%
Rec (70%)	11%	0%	0%	12%
BTF-ACI (50%)	11%	0%	0%	18%
BTF-ACI (70%)	11%	0%	0%	18%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0	3,170	59,780	62,950	2%
BTF-ACI (70%)	0	0	3,170	51,040	54,210	2%

- 1. Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

0%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	97,760	100,930	3%
Floor (50%)	11,530	0	3,170	111,330	126,030	4%
Floor (70%)	11,530	0	3,170	111,330	126,030	4%
Rec (50%)	28,490	0	3,170	111,330	142,990	4%
Rec (70%)	28,490	0	3,170	111,330	142,990	4%
BTF-ACI (50%)	28,490	7,380	3,170	170,050	209,090	6%
BTF-ACI (70%)	28,490	2,730	3,170	170,050	204,440	6%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

0%

MACT Option	i	nent Ins	LW	AKs	i	nercial erators		-site erators	то	ΓAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	0	0	131	231	131	231
Floor (70%)	0	0	0	0	0	0	131	231	131	231
Rec (50%)	0	0	0	0	0	0	131	231	131	231
Rec (70%)	0	0	0	0	0	0	131	231	131	231
BTF-ACI (50%)	. 0	0	0	3	0	0	147	260	147	263
BTF-ACI (70%)	0	0	0	0	0	0	   139 	252	139	252
									1	
			,							

- Low-end estimates include employment losses associated only with those systems located
  at facilities where all systems stop burning. High-end estimates reflect all employment losses,
  including those associated with closing systems located at facilities where at least one system
  remains open. The low-end estimate assumes the possibility for employee reassignment
  within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

0%

MACT Option		nent Ins	LW	AKs		nercial erators	On- Incine	site rators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0	0	98	116	119	137
Floor (70%)	21	21	0	0	0	0	98	116	119	137
Rec (50%)	42	42	0	0	- 0	0	98	116	140	158
Rec (70%)	42	42	0	0	0	0	98	116	140	158
BTF-ACI (50%)	42	42	0	5	0	0	124	164	166	211
BTF-ACI (70%)	42	42	0	3	0	0	124	132	166	177
			<u>.</u>		 				· I	

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Fir(50%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try				,	
Pollution Control Equipment	77	5	10	31	5	128
CEMs/Monitoring Equipment	6	0	0	2	1 .	8
Labor Within Combustion Sector						
O&M	50	4	9	84	8	156
Permitting	1	0	. 1	4	1	7
Total	134	10	20	121	15	300

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(70%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	51	5	8	28	5	96
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	35	4	7	76	7	130
Permitting	1	0	1	4	1	7
Total	94	9	16	109	14	242

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	37	5	138
CEMs/Monitoring Equipment	6	0	0	2	1	8 .
Labor Within Combustion Sector						
O&M	50	5	13	98	8	175
Permitting	1	0	1	4	1	7
Total	134	13	26	141	15	329

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	6	10	34	5	106
CEMs/Monitoring Equipment	6	0	0	2,	1	8
Labor Within Combustion Sector						
O&M	35	5	12	90	7	149
Permitting	1	0	1	3	1	7
Total	94	11	23	128	14	270

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	99	8	22	83	13	225
CEMs/Monitoring Equipment	6	0	0	2	1	. 8
Labor Within Combustion Sector						
O&M	84	14	35	185	24	342
Permitting	1	0	1	4 .	1	7
Total	190	22	59	273	39	583

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	78	9	20	74	13	194
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	67	14	35	170	22	308
Permitting	1	0	. 1	4	1	8
Total	152	23	56	249	37	518

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

0%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance co	osts passed thr	ough		
Floor (50%)	\$0	\$0	\$0	\$0
Floor (70%)	\$0	\$0	\$0	\$0
Rec (50%)	\$0	\$0	\$0	\$0
Rec (70%)	\$0	\$0	\$0	\$0
BTF-ACI (50%)	\$0	\$0	\$0	\$0
BTF-ACI (70%)	\$0	\$0	\$0	\$0

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

PRELIMINARY ECONOMIC IMPACT RESULTS

NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

			Cement Kilns	ıs				LWAKS				Commer	Commercial Incinerators	ators	-		On-site	On-site Incinerators	ρ			Govern	Government On-sites	tes	
	<10%	10-20%	21-50%	<10% 10-20% 21-50% 51-75% >75%	>75%		<10% 10-20% 21-50%	21-50%	51-75%	>75%	<10%	10-20% 21-50%		51-75%	>75%	<10% 1	10-20% 21-50%		51-75%	>75% <	<10% 16	10-20% 2	21-50% 5	51-75%	>75%
Floor (50%)	18%	%6	42%	21%	<b>%</b> 6	13%	13%	%09	25%	%0	%08	10%	10%	%0	%0	46%	13%	35%	4%	2%	33%	33%	19%	2%	10%
Floor (70%)	33%	18%	30%	15%	3%	13%	38%	38%	13%	%0	85%	2%	10%	%0	%0	46%	19%	29%	4%	7 %	48%	19%	19%	2%	10%
Rec (50%)	15%	12%	39%	21%	12%	%0	%0	75%	25%	%0	80%	15%	2%	%0	%0	40%	13%	40%	4%	2%	33%	33%	19%	2%	10%
Rec (70%)	30%	18%	27%	18%	%9	%0	%0	%88	13%	%0	85%	40%	2%	%0	%0	40%	17%	37%	4%	7 %2	48%	19%	19%	2%	10%
BTF-AC! (50%)	%9	3%	33%	33%	24%	%0	%0	63%	13%	25%	%02	25%	2%	%0	%0	21%	21%	46%	%9	. %9	24%	14%	38%	10%	14%
BTF-ACI (70%)	24%	%6	18%	33%	15%	%0	%0	63%	25%	13%	%02	25%	2%	· %0	%0	23%	25%	40%	%9	%9	33%	10%	33%	10%	14%

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs. \* Hazardous waste burned).
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

		Cer	Cement Kilns				1	LWAKs				Commer	Commercial Incinerators	tors	-		On-sif	On-site Incinerators	ors	
<u> </u>	<10%	10-20%	21-50% 51-75% >75%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%
							·													
Floor (50%)	48%	21%	30%	%0	%0	25%	20%	25%	%0	%0	%06	%0	%0	2%	2%	52%	13%	19%	%4	12%
Floor (70%)	64%	18%	18%	%0	%0	38%	20%	13%	%0	%0	%06	%0	%0	2%	2%	26%	12%	17%	%8	%8
Rec (50%)	48%	21%	30%	%0	%0	%0	38%	63%	%0	%0	%06	%0	%0	2%	%9	52%	12%	17%	4%	15%
Rec (70%)	52%	30%	18%	%0	%0	%0	63%	38%	%0	%0	%06	%0	2%	%0	2%	%99	10%	15%	%8	12%
BTF-ACI (50%)	27%	27%	45%	%0	%0	%0	13%	75%	13%	%0	%06	%0	%0	2%	%9	40%	13%	23%	12%	12%
BTF-ACI (70%)	39%	30%	30%	%0	%0	%0	38%	%89	%0	%0	%06	%0	%0	%9	%9	44%	15%	19%	10%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/(Waste burning revenues per ton + Energy savings per ton]
 Co-neit incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

%

		Cement Kilns			LWA Kilns			Commercial Incinerators		0	On-site Incinerators	ors
_	Operating F	Operating Profit Margin   % Margin after	% Margin after	Operating Pr	ng Profit Margin	% Margin after	Opei	Operating Profit Margin	% Margin after	Operating	Operating Profit Margin	% Margin after
ptions	\$ Change	% Change	the Rule	\$ Change	% Change	the Rufe	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule
												_
Floor (50%)	(\$21)	-15%	%69	(\$30)	-34%	43%	(\$14)	-3%	26%	(\$28)	%/-	%09
Floor (70%)	(\$13)	%6-	73%	(\$24)	-27%	47%	(\$11)	-3%	21%	(\$24)	%2-	61%
Rec (50%)	(\$21)	-15%	%69	(\$42)	47%	34%	(\$14)	-3%	26%	(\$29)	· %8-	%09
Rec (70%)	(\$14)	-10%	72%	(\$38)	43%	37%	(\$12)	-3%	57%	(\$25)	%2-	61%
BTF-ACI (50%)	(\$45)	-32%	25%	(\$46)	46%	40%	(\$18)	-4%	26%	(\$33)	%8-	%89
BTF-AC! (70%)	(\$34)	-24%	61%	(\$53)	%09-	26%	(\$16)	*4	26%	(\$32)	%6-	62%

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost for the most efficient combustion sector. As this is a static model, we have capped the price pass-through using the combustion systems expected to remain burning hazardous waste even though the original pass-through value included some systems expected to stop burning. This is a better approximation of the impetus combustors have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste.

2. Operating profits exclude convented, other administrative costs, and taxes. Actual after-tax profits will be lower.

3. Percentage poreits administrative costs, and taxes. Actual after-tax profits will be lower.

4. Percentage poreiting Profit Margin = average operating profits per ton / (weighted average price per ton + vasuamed price increase due to compliance costs passed through). Percentage operating profits and prices.

4. Change in operating profits margin = baseline operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin in angin after the rule by one plus the percentage change in the operating profit margin. Passeline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	5	10	31	5	128
CEMs/Monitoring Equipment	25	6	14	59	29	132
Labor Within Combustion Sector			•			
O&M	50	4	9	83	8	155
Permitting	1	0	1,	4	1	7
Total	153	16	34	176	43	423

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	√51	5	8	28	5	96
CEMs/Monitoring Equipment	25	6	14	57	29	131
Labor Within Combustion Sector						
O&M	35	4	8	76	7	130
Permitting	1	0	1	4	1	7
Total	113	15	30	164	42	364

### Notes:

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

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ALL FIGURES PRELIMINARY

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	37	5	138
CEMs/Monitoring Equipment	25	6	14	56	29	130
Labor Within Combustion Sector						
O&M	50	5	13	98	8	175
Permitting	1	0	1	4	1	7
Total	153	19	40	195	43	450

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	51	6	10	34	. 5	106
CEMs/Monitoring Equipment	25	6	14	55	29	128
Labor Within Combustion Sector						
O&M	35	5	12	90	7	150
Permitting	1	0	1	3	1	7
Total	113	17	37	182	42	391

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	99	8	22	81	13	223
CEMs/Monitoring Equipment	25	5	15	57	29	130
Labor Within Combustion Sector						
O&M	84	14	35	182	24	339
Permitting	1	0	1	4	1	7
Total	209	27	73	323	67	700

### Notes:

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

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### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	78	9	20	69	13	189
CEMs/Monitoring Equipment	25	6	14	56	29	131
Labor Within Combustion Sector						
O&M	67	14	35	159	22	297
Permitting	1	0	1	4	1	7
Total	171	29	71	288	65	625

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance co	osts passed thr	ough		
Floor (50%)	\$5	\$5	\$5	\$5
Floor (70%)	\$4	\$4	\$4	\$4
Rec (50%)	\$5	\$5	\$5	\$5
Rec (70%)	\$4	\$4	\$4	\$4
BTF-ACI (50%)	\$12	\$12	\$9	\$10
BTF-ACI (70%)	\$9	\$9	\$7	\$8

### Notes:

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

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**ALL FIGURES PRELIMINARY** 

PRELIMINARY ECONOMIC IMPACT RESULTS

NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

Cement Kilns	Cement Kilns	ement Kilns	ş		<del>-  -</del>			LWAKs		+		Commerc	Commercial Incinerators	ators	1		On-site	On-site Incinerators	ors	+		Govern	Government On-sites	ites	
<10% 10.20% 21-50% 51-75% >75%   <10% 10-20% 21-50% 51-75%	<10% 10-20% 21-50% 5	<10% 10-20% 21-50% 5	<10% 10-20% 21-50% 5	<10% 10-20% 21-50% 5	<10% 10-20% 21-50% 51-75%	10-20% 21-50% 51-75%	21-50% 51-75%	51-75%		>75%	<10%	10-20% 21-50%	21-50%	51-75%	>75%	<10%	10-20% 21-50%	1-50%	51-75%	>75%	<10% 1	0-20% 2	10-20% 21-50% 51-75%	1-75%	>75%
										_															
15% 9% 39% 24% 12% 0% 25% 50% 25%	39% 24% 12% 0% 25% 50%	24% 12% 0% 25% 50%	12% 0% 25% 50%	0% 25% 50%	25% 50%	20%	.,	25%		%0	%08	10%	10%	%0	%0	33%	21%	37%	%9	4%	24%	14%	43%	10%	10%
30% 9% 36% 21% 3% 13% 13% 50% 25%	36% 21% 3% 13% 13% 50%	21% 3% 13% 13% 50%	3% 13% 13% 50%	13% 13% 50%	13% 50%	20%		25	%	%0	85%	2%	10%	%0	%0	38%	25%	27%	%9	4%	33%	14%	33%	2%	14%
3% 21% 36% 21% 18% 0% 0% 75% 25%	36% 21% 18% 0% 0% 75%	21% 18% 0% 0% 75%	18% 0% 0% 75%	%0 %0 %0	0% 75%	75%		25%	ی	%0	%08	10%	10%	%0	%0	27%	19%	48%	%0	%9	24%	14%	43%	10%	10%
27% 12% 30% 24% 6% 0% 0% 75% 25%	30% 24% 6% 0% 75%	24% 6% 0% 75%	%9 %0 %9 %9 %9 %9 %9 %9 %9 %9 %9 %9 %9 %9 %9	0% 0% 75%	%92 %0	75%		25	%	%0	85%	10%	2%	%0	%0	33%	23%	38%	2%	4%	33%	14%	33%	%9	14%
3% 6% 30% 30% 30% 0% 0% 38% 38	30% 30% 0% 0% 38%	30% 30% 0% 38%	30% 0% 38%	0% 38%	0% 38%	38%		ణ	38%	25%	%09	30%	10%	%0	%0	13%	72%	46%	%8	8%	19%	10%	33%	24%	14%
21% 6% 15% 36% 21% 0% 0% 38% 5	15% 36% 21% 0% 0% 38%	36% 21% 0% 0% 38%	21% 0% 0% 38%	0% 0% 38%	0% 38%	38%		ιū	%09	13%	%02	25%	2%	%0	%0	15%	31%	38%	10%	%9	24%	14%	24%	19%	19%

Notes:

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs]
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

Cement Kilns New Fabric Filters New LEWS New WS New WS New Carbon Injection New Carbon Bed New Carbon Bed New Afterburner New Afterburner New Afterburner New Afterburner New Reheater Fabric Filter DOM, small Fabric Filter DOM, mod DESP DOM, small WESP DOM, small HEWS DOM, small	80000000000000000000000000000000000000	35 00% 00% 00% 00% 00% 00% 00% 00% 00% 00	33 80 90 90 90 90 90 90 90 90 90 90 90 90 90	$\begin{array}{c} 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 $	398 0004 0008 0008 0008 0008 0008 0008 00	30 00 00 00 00 00 00 00 00 00 00 00 00 0
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LEWS DOM, mod	%0	00% 30% 100%		0% 40%	% <u>0</u>	%0
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New DS	%0	30% 100%	%0	40%	%0	%0
Feed Control	33%	%00I	37%		22%	21%
Total	100%		100%	100%	100%	100%
LWAKs						
New Fabric Filters	%0	%0	%0	%0	27%	24%
New LEWS	%0	%0	%0	%0	%0	%0
New IWS	%0	%0	%0	%0	%0	%0
New Carbon Injection	%0	%0	%0	%0	31%	27%
New Carbon Bed	%0	%0	%0	%0	%0	%0
New Quencher	38%	47%	28%	78%	10%	11%
New Afferburner	%0	%0	%0	%0	%0	%0
New Reheater	%0	%0	%0	%0	%0	%0
Fabric Filter DOM, small	1%	1%	1%	1%	%0	%0
Fabric Filter DOM, mod	3%	%0	2%	%0	%0	%0
DESP DOM, small	%0	%0	%0	%0	%0	%0
DESP DOM, mod	%0	%0	%0	%0	%0	%0
WESP DOM, small	%0	%0	%0	%0	%0	%0
WESP DOM, mod	%0	%0	%0	%0	%0	%0
IWS DOM, small	%0	%0	%0	%0	%0	%0
IWS DOM, mod	%0	%0	%0	%0	%0	%0
HEWS DOM, small	%0	%0	%0	%0	%0	%0
HEWS DOM, mod	%0	%0	%0	%0	%0	%0
LEWS DOM, small	%0	%0	%0	%0	%0	%0
LEWS DOM, mod	%0	%0	%0	%0	%0	%0
Combination DOM	%0	%0	%0	%0	%0	%0
New DS	%0	%0	38%	42%	27%	30%
Feed Control	28%	25%	31%	79%	4%	%8
Total	100%	%00 <b>I</b>	100%	100%	100%	100%
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	Floor(50%)	Floor(70%) F	Rec(50%)	Rec(70%) BT	BTF-ACI(50% BT	BTF-ACI(70%	
Commercial Incinerators							
New Fabric Filters	10%	8%	%6 6	11%	19%	20%	
New LEWS	%00	% 6	%%	%°	%0	% &	
New Carbon Injection	% 0	% 0	16%	, 64 % 84 % 84	47%	%°2	
New Carbon Bed	%0	%0	%0	% 0	%0	%0	
New Quencher	21%	23%	17%	17%	4%	3%	
New Arterburner New Reheater	% 0	%°°	3%	% % %	19%	%°2	
Fabric Filter DOM, small	%0	1%	%0	1%	%0	%0	
Fabric Filter DOM, mod	3%	4%	3%	% 2%	2%	%0	
DESP DOM, small	%°°	%0	%° °	%0	%%	% 0	
WESP DOM: small	%0	%0	%0	°°°	%0	%°°	
WESP DOM, mod	%0	%0	%0	%0	%0	%0	
IWS DOM, small	1%	%0	1%	%0	%0	%0	
IWS DOM, mod	% ?	<b>4</b> %	1%	1%	%0	%°	
HEWS DOM, small	%60	%%	%°	%7	0% 7	°,	
FWS DOM, FIED	%0	% ? ?	%0	%0	%-	%-	
EWS DOM mod	%0 0	%	%0	%0	%0	%0	
Combination DOM	%0	%0	%0	%0	%0	%0	
New DS	%0	%0	%0	%0	%0	%0	
Feed Control	25%	61%	44%	44%	%8	2%	
lotal	%00L	100%	%00L	100%	100%	%00L	
On-Site Incinerators	•	i	i	ì	i	č	
New Fabric Fitters	36%	54% 9%	36%	48% %8,	%8Z	33%	
New LEWS	% % %	%0	%0	%0	% % O O	% 0	
New Carbon Injection	%0	%0	%	12%	28%	30%	
New Carbon Bed	%0	%0	%0	1%	1%	1%	
New Quencher	2%	7%	3%	4%	2%	2%	
New Afterburner	30%	4.	27%	%9	17%	3%	
New Reheater	%0 0	%0	4% %	2%	20%	21%	
Fabric Filter DOM, small	%0 0	%0	%0	%0	%0	%0	
Fabric Filter DOM, mod	%°0	%%	% % O C	% 0	% % 0 0	% % O	
DEST DOM, SITE	%	%%	° °	% 0	%	° %	
WESP DOM, small	%0	%	%	%0	%	%0	
WESP DOM, mod	%0	%0	%0	%0	%0	%0	
IWS DOM, small	%0	%0	%0	%0	%	%0	
LEWS DOM, HIGH	%0	%0	% %	% 0 0	%0	% % 0	
HEWS DOM, mod	5%	4 %	1%	3%	%0	%0	
LEWS DOM, small	%0	%0	%0	%0	%0	%0	
LEWS DOM, mod	%0	%0	%0	%0	%0	%0	
Combination DOM	% 6	% 0	% 6	% 6	%°	% 6	
New US Feed Control	03%	%9C	, 8°, 8°, 8°, 8°, 8°, 8°, 8°, 8°, 8°, 8°	%00	0.8 4%	%%	
Total	100%	100%	100%	100%	100%	100%	
Government On-Site Incinerators							
New Fabric Filters	22%	21%	22%	21%	22%	21%	
New LEWS	%0	%	%0	%0	%0	%0	
New IWS	%0 0	%0	%0	%0	%0	%00	
New Carbon Injection	%000	800	88	%0	32% 0%	8/-C	
New Oriencher	%	%	<b>%</b>	%	%	2 %	
New Afterburner	%9	%/	%9	%/	4%	4 %	
New Reheater	%0	%0	%0	%0	12%	13%	
Fabric Filter DOM, smalf	%0	%0	%0	%0	%0 0	%0	
Fabric Filter DOM, mod	%	%0	%°0	%0	%°	% 60	
DESP DOM, small	% 6	% 0	%0 0	%	% 0	%%	
WESP DOM, small	%°°	% 0 0	%0	%0	%0	%0	
WESP DOM, mod	%0	%0	%0	%0	%0	%0	
IWS DOM, small	%0	%0	%0 0	%0	%0	%0	
IWS DOM, mod	%8	%6 6	% 8	%6 6	%	%°	
HEWS DOM, small	% 6	%	%	%000	<b>%</b> 8	% 6	
LEWS DOM, small	%0	%	%	%	%	%	
LEWS DOM, mod	%0	%0	%0	%0	%0	%0	
Combination DOM	2%	2%	2%	2%	1%	1%	
New DS	%0	%0	%0	%0	%0	%0°	
Feed Control	62%	61%	62%	61%	24%	22%	
lotal	100%	1007%	%00L	%20L	10078	% 2001	

## PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

	Cement Kilns	t Kilns	LWAKs	Ks	Commercial Incinerators	Incinerators		On-site Incinerators	inerators	
•	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% below >20% below	>20% below	<20% below	<20% below >20% below
•		-								•
Floor (50%)	%0	3%	%0	%0	10%	10%	%0	31%	4%	40%
Floor (70%)	%0	3%	%0	%0	10%	10%	2%	29%	4%	40%
Rec (50%)	%0	%9	%0	%0	10%	10%	%0	31%	4%	40%
Rec (70%)	%0	%9	%0	%0	10%	10%	2%	76%	4%	40%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	2%	33%	8%	46%
BTF-ACI (70%)	%0	%9	%0	25%	10%	10%	2%	31%	%8	46%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

25%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
Floor (50%)	\$24	\$3	\$7	\$27	\$7	\$68	-18%
Floor (70%)	\$16	\$3	\$6	\$23	\$7	\$55	-20%
Rec (50%)	\$26	\$4	\$7	\$28	\$7	\$72	-19%
Rec (70%)	\$19	\$4	\$6	\$25	\$7	\$60	-21%
BTF-ACI (50%)	\$34	\$4	\$10	\$43	\$27	\$118	-18%
BTF-ACI (70%)	\$27	\$5	\$9	\$40	\$26	\$107	-18%

- Compliance costs after consolidation include only the costs for those systems that will continue to burn
  waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning waste on-site.
- Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket
- "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### TOTAL COST OF WASTE DIVERTED FROM ON-SITE SYSTEMS THAT STOP BURNING (millions)

### Price pass through assumed:

25%

Option	On-site Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	\$6.03
BTF-ACI (70%)	\$6.03

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS (millions)

### (Includes Cost of Waste Diversion)

Price pass through assumed:

25%

Option	Total	
Floor (50%)	\$68	
Floor (70%)	\$55	
Rec (50%)	\$72	
Rec (70%)	\$61	
BTF-ACI (50%)	\$124	
BTF-ACI (70%)	\$113	

- 1. Compliance costs after consolidation include the costs for those systems that will continue to burn waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop burning wastes do not incur compliance costs and therefore are excluded.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

25%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Floor (50%)	\$728,353	\$312,665	\$298,694	\$306,987	\$281,064
Floor (70%)	\$495,465	\$265,102	\$268,924	\$265,247	\$261,146
Rec (50%)	\$773,990	\$394,025	\$303,414	\$322,844	\$281,064
Rec (70%)	\$578,418	\$360,261	\$277,499	\$282,653	\$261,146
BTF-ACI (50%)	\$1,043,019	\$477,964	\$426,560	\$561,122	\$1,061,809
BTF-ACI (70%)	\$818,226	\$464,470	\$403,222	\$513,964	\$1,042,619

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

25%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$31	\$37	\$17	\$36
Floor (70%)	\$23	\$31	\$14	\$32
Rec (50%)	\$33	\$49	\$17	\$36
Rec (70%)	\$26	\$45	\$15	\$33
BTF-ACI (50%)	\$44	\$51	\$21	\$39 <sup>'</sup>
BTF-ACI (70%)	\$35	\$59	\$19	\$36

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

25%

		Cement Kilns			LWAKs		Сош	Commercial Incinerators	ators	Privat	Private On-site Incinerators	erators
	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Rec (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
BTF-ACI (50%)	100%	%0	%0	%88	%0	13%	%06	%0	10%	%99	%0	44%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%95	%0	44%

Notes:

Percent of systems currently not meeting short term baseline break-even quantity:
 Cement Kilns 0%
 LWAKs 0%
 Commercial Incinerators 10%
 Private On-site Incinerators 15%

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

25%

		Cement Kilns			LWAKs		Com	Commercial Incinerators	ators	Private	Private On-site Incinerators	erators
	Above	Above <20% below >20% below	>20% below	Above	<20% below >20% below	20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below
Floor (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	20%
Floor (70%)	%26	%0	3%	100%	%0	%0	%06	%0	. 10%	20%	%0	20%
Rec (50%)	94%	%0	%9	100%	%0	%0	%06	%0	10%	20%	%0	20%
Rec (70%)	94%	%0	%9	100%	%0	%0	%06	%0	10%	20%	%0	20%
BTF-ACI (50%)	94%	%0	%9	75%	%0	25%	%06	%0	10%	46%	%0	54%
BTF-ACI (70%)	94%	%0	%9	%88	%0	13%	%06	%0	10%	48%	%0	52%

Notes:

Percent of systems currently not meeting long term baseline break-even quantity: Cement Kilns

0% 0% 10% 35%

LWAKs Commercial Incinerators Private On-site Incinerators

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burnir	ng Waste			
Floor (50%)	0	0	0	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	0	16
BTF-ACI (50%)	0	0	0	23
BTF-ACI (70%)	0	0	0	23

On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

	Floor(50%)	Floor(70%) F	Rec(50%)	Rec(70%) BT	BTF-ACI(50% BT	BTF-ACI(70%	
Commercial Incinerators							
New Fabric Filters	10%	8%	%6 6	11%	19%	20%	
New LEWS	%00	% 6	%%	%°	%0	% &	
New Carbon Injection	% 0	% 0	16%	, 64 % 84 % 84	47%	%°2	
New Carbon Bed	%0	%0	%0	% 0	%0	%0	
New Quencher	21%	23%	17%	17%	4%	3%	
New Arterburner New Reheater	% 0	%°°	3%	% % %	19%	%°2	
Fabric Filter DOM, small	%0	1%	%0	1%	%0	%0	
Fabric Filter DOM, mod	3%	4%	3%	% 2%	2%	%0	
DESP DOM, small	%°°	%0	%° °	%0	%%	% 0	
WESP DOM: small	%0	%0	%0	%0	%0	%°°	
WESP DOM, mod	%0	%0	%0	%0	%0	%0	
IWS DOM, small	1%	%0	1%	%0	%0	%0	
IWS DOM, mod	% ?	<b>4</b> %	1%	1%	%0	%°	
HEWS DOM, small	%60	%%	%°	%7	0% 1	° %	
FWS DOM, FIED	%0	% ? ?	%0	%0	%-	%-	
EWS DOM mod	%0 0	%	%0	%0	%0	%0	
Combination DOM	%0	%0	%0	%0	%0	%0	
New DS	%0	%0	%0	%0	%0	%0	
Feed Control	25%	61%	44%	44%	%8	2%	
lotal	%00L	100%	%00L	100%	100%	%00L	
On-Site Incinerators	•	i	i	ì	i	č	
New Fabric Fitters	36%	54% 9%	36%	48% %8,	%8Z	33%	
New LEWS	% % %	%0	%0	%0	% % O O	% 0	
New Carbon Injection	%0	%0	%	12%	28%	30%	
New Carbon Bed	%0	%0	%0	1%	1%	1%	
New Quencher	2%	7%	3%	4%	2%	2%	
New Afterburner	30%	4.	27%	%9	17%	3%	
New Reheater	%0 0	%0	4% %	2%	20%	21%	
Fabric Filter DOM, small	%0 0	%0	%0	%0	%0	% 6	
Fabric Filter DOM, mod	%°0	%%	% % O C	% 0	% % 0 0	% % O	
DEST DOM, SITE	%	%%	° °	% 0	%	° %	
WESP DOM, small	%0	%	%	%0	%	%0	
WESP DOM, mod	%0	%0	%0	%0	%0	%0	
IWS DOM, small	%0	%0	%0	%0	%	%0	
LEWS DOM, HIGH	%0	%0	% %	% 0 0	%0	% % 0	
HEWS DOM, mod	5%	4 %	1%	3%	%0	%0	
LEWS DOM, small	%0	%0	%0	%0	%0	%0	
LEWS DOM, mod	%0	%0	%0	%0	%0	%0	
Combination DOM	% 6	% 0	% 6	% 6	%°	% 6	
New US Feed Control	03%	%9C	, 8°, 8°, 8°, 8°, 8°, 8°, 8°, 8°, 8°, 8°	%00	0.8 4%	%%	
Total	100%	100%	100%	100%	100%	100%	
Government On-Site Incinerators							
New Fabric Filters	25%	21%	22%	21%	22%	21%	
New LEWS	%0	%	%0	%0	%0	%0	
New IWS	%0 0	%0	%0	%0	%0	%00	
New Carbon Injection	%000	800	88	%0	32% 0%	8/-C	
New Oriencher	%	%	<b>%</b>	%	%	2 %	
New Afterburner	%9	%/	%9	%/	4%	4 %	
New Reheater	%0	%0	%0	%0	12%	13%	
Fabric Filter DOM, smalf	%0	%0	%0	%0	%0 0	%0	
Fabric Filter DOM, mod	%	%0	%°0	%0	%0	% 60	
DESP DOM, small	% 6	% 0	%0 0	%	% 0	%%	
WESP DOM, small	%°°	% 0 0	%0	%0	%0	%0	
WESP DOM, mod	%0	%0	%0	%0	%0	%0	
IWS DOM, small	%0	%0	%0 0	%0	%0	%0	
IWS DOM, mod	%8	%6 6	% 8	%6 6	%	%°	
HEWS DOM, small	% 6	%	%	%000	<b>%</b> 8	% 6	
LEWS DOM, small	%0	%	%	%	%	%	
LEWS DOM, mod	%0	%0	%0	%0	%0	%0	
Combination DOM	2%	2%	2%	2%	1%	1%	
New DS	%0	%0	%0	%0	%0	%0°	
Feed Control	62%	61%	62%	61%	24%	22%	
lotal	100%	1007%	%00L	%20L	10078	% 2001	

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
-acilities currently burning pelow break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	21%
BTF-ACI (70%)	0%	0%	0%	21%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	6%	0%	0%	12%
Rec (50%)	11%	0%	0%	12%
Rec (70%)	11%	0%	0%	12%
BTF-ACI (50%)	11%	0%	0%	18%
BTF-ACI (70%)	11%	0%	0%	15%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0	3,170	59,780	62,950	2%
BTF-ACI (70%)	0	0	3,170	59,780	62,950	2%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- 4. Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

25%

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
0	0	3,170	97,760	100,930	3%
11,530	0	3,170	111,330	126,030	4%
11,530	0	3,170	111,330	126,030	4%
28,490	0	3,170	111,330	142,990	4%
28,490	0	3,170	111,330	142,990	4%
28,490	7,380	3,170	170,050	209,090	6%
28,490	2,730	3,170	123,210	157,600	5%
	0 11,530 11,530 28,490 28,490 28,490	Kilns         LWAKs           0         0           11,530         0           11,530         0           28,490         0           28,490         0           28,490         7,380	Kilns         LWAKs         Incinerators           0         0         3,170           11,530         0         3,170           11,530         0         3,170           28,490         0         3,170           28,490         0         3,170           28,490         7,380         3,170	Kilns         LWAKs         Incinerators         Incinerators           0         0         3,170         97,760           11,530         0         3,170         111,330           11,530         0         3,170         111,330           28,490         0         3,170         111,330           28,490         0         3,170         111,330           28,490         7,380         3,170         170,050	Kilns         LWAKs         Incinerators         Incinerators         TOTAL           0         0         3,170         97,760         100,930           11,530         0         3,170         111,330         126,030           11,530         0         3,170         111,330         126,030           28,490         0         3,170         111,330         142,990           28,490         0         3,170         111,330         142,990           28,490         7,380         3,170         170,050         209,090

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

25%

MACT Option		nent Ins	LW	AKs		nercial erators	On- Incine	site rators	то	ΓAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0	0	98	116	119	137
Floor (70%)	21	21	l 0	0	0	0	98	116	   119	137
Rec (50%)	42	42	l 0	0	l 0	0	98	116	   140 	158
Rec (70%)	42	42	l 0	0	0	0	98	116	   140 	158
BTF-ACI (50%)	42	42	l 0 1	5	0	0	124	132	   166 	179
BTF-ACI (70%)	42	42	0 1	3	0	0	106	124	l 148 I	169
			<b>I</b> 1		<b> </b> 				<b> </b> 	
			  - 		1					
					/					

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
try					
77	5	10	31	5	128
25	6	14	59	29	132
50	4	9	83	8	155
1	0	1	4	1	7
153	16	34	176	43	423
	77 25 50 1	Kilns         LWAKs           Stry         77         5           25         6           50         4           1         0	Kilns         LWAKs         Incinerators           Arry         77         5         10           25         6         14           50         4         9           1         0         1	Kilns         LWAKs         Incinerators         Incinerators           1try         77         5         10         31           25         6         14         59           50         4         9         83           1         0         1         4	Cement Kilns         LWAKs         Commercial Incinerators         On-site Incinerators         On-site Incinerators           Atry         77         5         10         31         5           25         6         14         59         29           50         4         9         83         8           1         0         1         4         1

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Fir(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	<sub>'</sub> 51	5	8	28	5	96
CEMs/Monitoring Equipment	25	6	14	57	29	131
Labor Within Combustion Sector						
O&M	35	4	8	76	7	130
Permitting	1	0	1	4	1	7
Total	113	15	30	164	42	364

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	37	5	138
CEMs/Monitoring Equipment	25	6	14	56	29	130
Labor Within Combustion Sector						
O&M	50	5	13	98	8	175
Permitting	1	0	1	4	1	7
Total	153	19	40	195	43	450

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	51	6	10	34	5	106
CEMs/Monitoring Equipment	25	6	14	55	29	128
Labor Within Combustion Sector						
O&M	35	5	12	90	7	150
Permitting	1	0	1	3	1	7
Total	113	17	37	182	42	391

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	99	8	22	81	13	223
CEMs/Monitoring Equipment	25	5	15	57	29	130
Labor Within Combustion Sector	ν.					
O&M	84	14	35	182	24	339
Permitting	1	0	1	4	1	7
Total	209	27	73	323	67	700

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	78	9	20	69	13	189
CEMs/Monitoring Equipment	25	6	14	56	29	131
Labor Within Combustion Sector						
O&M	67	14	35	159	22	297
Permitting	1	0	1	4	1	7
Total	171	29	71	288	65	625

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance co	osts passed thr	ough		
Floor (50%)	\$5	\$5	\$5	\$5
Floor (70%)	\$4	\$4	\$4	\$4
Rec (50%)	\$5	\$5	\$5	\$5
Rec (70%)	\$4	\$4	\$4	\$4
BTF-ACI (50%)	\$12	\$12	\$9	\$10
BTF-ACI (70%)	\$9	\$9	\$7	\$8

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

		J	Cement Kilns	SL				LWAKs		<del>-</del>		Commerc	Commercial Incinerators	ators			On-site	On-site Incinerators	ors	_		Govern	Government On-sites	ites	
	×10%	10-20%	21-50%	<10% 10-20% 21-50% 51-75% >75%		<10% 10-20% 21-50%	10-20%	l	51-75%	>75%	<10%	<10% 10-20% 21-50%	21-50% 5	51-75%	>75%	<10% 10-20% 21-50%	0.20%	21-50%	51-75%	>75%	<10%	10-20%	10-20% 21-50% 51-75%		>75%
Floor (50%)	15%	%6	39%	24%	12%	%0	25%	20%	25%	%0	%08	10%	10%	%0	%0	33%	21%	37%	%9	4%	24%	14%	43%	10%	10%
Floor (70%)	30%	<b>%</b> 6	36%	21%	3%	13%	13%	%09	25%	%0	%58	2%	10%	%0	%0	38%	722%	27%	%9	4%	33%	14%	33%	2%	14%
Rec (50%)	3%	21%	36%	21%	18%	%0	%0	75%	25%	%0	%08	10%	10%	%0	%0	27%	19%	48%	%0	%9	24%	14%	43%	10%	10%
Rec (70%)	27%	12%	30%	24%	%9	%0	%0	75%	25%	%0	%58	10%	2%	%0	%0	33%	23%	38%	2%	4%	33%	14%	33%	2%	14%
BTF-ACI (50%)	3%	%9	30%	30%	30%	%0	%0	38%	38%	25%	%09	%06	10%	%0	%0	13%	25%	46%	%8	%8	19%	10%	33%	24%	14%
BTF-ACI (70%)	21%	%9	15%	36%	21%	%0	%0	38%	20%	13%	%02	25%	2%	%0	%0	15%	31%	38%	10%	%9	24%	14%	24%	19%	19%

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

Notes:

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

		Cei	Cement Kilns				_	LWAKs				Comme	Commercial Incinerators	rators			Ö	On-site Incinerators	iors	
	<10%	<10% 10-20% 21-50% 51-75% >75%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	<10% 10-20%	21-50%	51-75%	>75%
												:								
Floor (50%)	39%	30%	30%	%0	%0	13%	20%	38%	%0	%0	%06	%0	%0	%0	10%	48%	13%	10%	15%	13%
Floor (70%)	61%	18%	21%	%0	%0	25%	20%	25%	%0	%0	%06	%0	%0	2%	2%	25%	40%	10%	19%	10%
Rec (50%)	39%	30%	30%	%0	%0	%0	25%	75%	%0	%0	%06	%0	%0	2%	2%	48%	13%	12%	12%	15%
Rec (70%)	52%	27%	21%	%0	%0	%0	25%	75%	%0	%0	%06	%0	%0	2%	2%	52%	40%	12%	15%	12%
BTF-ACI (50%)	24%	27%	45%	3%	%0	%0	13%	63%	25%	%0	%06	%0	%0	2%	2%	37%	40%	19%	23%	12%
BTF-ACI (70%)	36%	24%	36%	3%	%0	%0	13%	75%	13%	%0	%06	%0	%0	2%	2%	37%	21%	12%	19%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy savings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

		Cement Kilns			LWA Kilns			Commercial Incinerators		ō	On-site Incinerators	-
	Operating F	Derating Profit Margin   % Margin after	% Margin after	Operating P	ng Profit Margin	% Margin after	Oper	Operating Profit Margin	% Margin after	Operating Profit N	Profit Margin	% Margin after
Silone	e Criariga	% Criange		e Criange	96.000	amy am	DA STATE	District of		e Claring	% Clariga	DIN DIN
Floor (50%)	(\$16)	-14%	%69	(\$31)	-38%	40%	(\$12)	-4%	26%	(\$30)	%6-	26%
Floor (70%)	(\$11)	-10%	73%	(\$27)	-33%	43%	(\$11)	-3%	21%	(\$28)	%8-	%09
Rec (50%)	(\$16)	-14%	%69	(\$43)	-51%	32%	(\$12)	*4	26%	(\$31)	%6-	26%
Rec (70%)	(\$12)	-11%	72%	(\$41)	48%	34%	(\$11)	-3%	26%	(\$29)	%8-	%09
BTF-ACI (50%)	(\$36)	-30%	26%	(\$33)	44%	41%	(6\$)	4%	%99	(\$27)	%8-	63%
BTF-ACI (70%)	(\$26)	-22%	%89	(\$51)	%09-	25%	(\$10)	%4	26%	(\$27)	%87	63%

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost for the most efficient combustion sector. As this is a static model, we have capped the price pass-through using the combustion systems expected to remain burning hazardous waste even through the original pass-through value included some systems expected to stop burning. This is a better approximation of the impetus combustors have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste.

2. Operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.

3. Percentage Operating Profit Margin = average profits per ton / (weighted average price per ton + assumed price increase due to compliance costs passed through). Percentage profit margin after the rule is

calculated using the same formula with post-rule operating profits and prices.

4. Change in operating profits per ton - baseline operating profits and prices.

5. Change in operating profits per ton - baseline operating profits per ton - baseline operating profits margin. Baseline operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin after the rule by one puts the percentage change in the operating profit margin. For consistency, baseline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### LIST OF EXHIBITS

### (25% Price Pass-Through; PM CEM Option 2: Not Required for Any Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$22	\$3	\$7	\$33	\$4	\$69
Floor (70%)	\$15	\$2	\$6	\$28	\$4	\$55
Rec (50%)	\$24	<b>\$</b> 3	\$7	\$37	\$4	\$75
Rec (70%)	\$17	\$3	\$6	\$32	\$4	\$63
BTF-ACI (50%)	\$33	\$5	\$10	\$59	\$24	\$130
BTF-ACI (70%)	\$25	\$4	\$9	\$54	\$24	\$116

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$677,373	\$260,252	\$267,273	\$237,552	\$179,565
Floor (70%)	\$444,485	\$212,689	\$238,749	\$203,763	\$159,648
Rec (50%)	\$723,010	\$341,613	\$267,634	\$265,811	\$179,565
Rec (70%)	\$527,438	\$307,849	\$242,210	\$234,073	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$379,459	\$429,193	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$356,234	\$392,281	\$941,121

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$29	\$30	\$116	\$17,853
Floor (70%)	\$21	\$24	\$111	\$17,190
Rec (50%)	\$31	\$42	\$129	\$17,968
Rec (70%)	\$23	\$38	\$121	\$17,318
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Baseline	\$74	\$114	\$658	\$36,325
Compliance Costs				
Floor (50%)	\$29	\$30	\$116	\$17,853
Floor (70%)	\$21	\$24	\$111	\$17,190
Rec (50%)	\$31	\$42	\$129	\$17,968
Rec (70%)	\$23	\$38	\$121	\$17,318
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

	<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
Cement Kilns	0	0	8	15	10
LWA Kilns	0	0	8	3	0
Commercial Incinerators	3	1	1	. 1	20
On-site Incinerators	48	13	11	11	56

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

	<0%	0% - 10%	11% - 25%	26% - 50%	>50%
Cement Kilns	0	0	0	2	31
LWA Kilns	0	0	0	0	10
Commercial Incinerators	3	0	3	8	13
On-site Incinerators	48	8	24	19	40

- Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) - total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- 5. Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

	Floor(50%) Floor(70%) Rec(50%) Rec(70%) BTF-ACI(70%	ns         ns         27%         33%         27%         61%         52%           ew Fabric Filters         33%         27%         61%         52%           ew LEWS         0%         0%         0%         0%           ew Mac         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%           ew Carbon Bed         0%         0%         0%         0%           ew Alexander         0%         0%         0%         0%         0%           ew Alexander         0%         0%         0%         0%         0%         0%         0%           ew Alexander         0%         0%         0%         0%         0%         0%         0%         0%         0% <t< th=""><th>ew Fabric Filters         0%         0%         0%         50%           ew LEWS         0%         0%         0%         0%         0%           ew LEWS         0%         0%         0%         0%         0%         0%           ew LEWS         0%         0%         0%         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%         0%         0%         0%         0%           ew Carbon Injection         0%</th></t<>	ew Fabric Filters         0%         0%         0%         50%           ew LEWS         0%         0%         0%         0%         0%           ew LEWS         0%         0%         0%         0%         0%         0%           ew LEWS         0%         0%         0%         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%         0%         0%         0%           ew Carbon Injection         0%         0%         0%         0%         0%         0%         0%         0%           ew Carbon Injection         0%
		all 33% 00% 00% 00% 00% 00% 00% 00% 00% 00%	

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES cont. (Before Consolidation)

TF-ACI(70%	00000000000000000000000000000000000000	E0000000000000000000000000000000000000	860 880 880 880 880 880 880 880 880 880
BTF-ACI(50%) B	400 88 88 88 98 88 88 98 88 88 98 88 88 98 88 88 98 88 88 98 88 98 98 88 88 88 88 88 88 88 88 8	880 880 880 880 880 880 880 880 880 880	88. 88. 88. 88. 89. 80. 80. 80. 80. 80. 80. 80. 80
Rec(70%) B	15% % % % % % % % % % % % % % % % % % %	00 80 80 80 80 80 80 80 80 80 80 80 80 8	24, 24, 24, 24, 24, 24, 24, 24, 24, 24,
Rec(50%)	%%00 %%00 %%%%%%%%%%%%%%%%%%%%%%%%%%%%	£0000000000000000000000000000000000000	29 %%0 %%0 %%0 %%0 %%0 %%0 %%0 %%0 %%0 %%
Floor(70%)	00000000000000000000000000000000000000	## 00000	4,5000000000000000000000000000000000000
Floor(50%)	- ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	- - %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	200 %00 %00 %00 %00 %00 %00 %00 %00 %00
	Commercial incinerators  New Tabic Filters  New Tabic Filters  New Carbon Injection  New Reheater  New Compliant mod  LEWS DOM, small  New DOM, small  LEWS DOM, small  New DS  Feed Control  None	On-Site Incinerators  New Tabric Filters  New Tabric Filters  New Wish  New Carbon Injection  New Carbon Bed  New Quencher  New Afferburner  New Afferburner  New Reheater  Pabric Filter DOM, small  Pabric Filter DOM, small  PESP DOM, mod  DESP DOM, mod  WESP DOM, mod  WESP DOM, mod  WESP DOM, small  WESP DOM, mod  LEWS DOM, small  HEWS DOM, small  HEWS DOM, small  LEWS DOM, small  LEWS DOM, small  LEWS DOM, mod  LEWS DOW, mod  LEWS DOW  LEWS	Government On-site Incinerators New Fabric Fillers New Halves New Wilde New Carbon Injection New Carbon Bed New Carbon Bed New Carbon Bed New Quencher New Afferburner New Afferburner New Afferburner New Afferburner New Reheater Fabric Filler DOM, small Fabric Filler DOM, small DESP DOM, small WESP DOM, small WESP DOM, small HEWS DOM, small HEWS DOM, small HEWS DOM, mod LEWS DOM, mod LEWS DOM, mod CEWS DOM, mod HEWS DOM, mod CEWS DOM, mod New DOM, mod CEWS DOM, mod New DOM, mod Combination DOM New DS

## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

CONTROL OF THE PERSON NAMED IN						The second secon	
	Floor(50%)	Floor(70%)	Rec(50%)	Rec(70%) B1	BTF-ACI(50% BTF-ACI(70%	ACI(70%	
Comont Kilne		,					
New Fabric Filters	35%	35%	33%	30%	39%	39%	
New LEWS	%0	%0	%0	%0	%0	%0	
New IWS	%0	%0	%0	%0	%0	%0	
New Carbon Injection	%0	%0	%0	%0	24%	24%	
New Carbon Bed	%0	%0	%0	%0	%0	%0	
New Quencher	24%	35%	23%	27%	13%	15%	
New Afterburner	%0 0	%0 0	%°	%0 0	%°0	%	
New Keneater	%0	%O	%0	%	% ò	% ò	
Fabric Filter DOM, small	%0	%0	%6	% ?	% 6	6%	
Fabric Filter DOM, mod	3%	%7	3%	%7	% -	%- 6	
DESP DOM, small	4%	%n	% % %	% 6	%-	%0	
	%0	%0 0	%0	%0	%0	%0	
WESP DOM, small	%0	%ô	%	% 6	%	%0	
WESP DOM, mod	%0	%ô	%0	%0 0	%0	% č	
IWS DOM, small	%0	%°	%0	%0	%0	%6	
IWS DOM, mod	%0 0	%0 0	%0	%0	%0	% O	
HEWS DOM, small	%0	%0 *0	%0	%0	%0	%0	
HEWS DOM, mod	%0	%0	%0	%0	%0	%0	
LEWS DOM, small	%0	%0	%0	%)	%) 0	%0	
LEWS DOM, mod	%0	%0	%0	%0	%0	%0	
Combination DOM	%0	%0	%0	%0	%0	%0	
New DS	%0	%0	%0	%0	%0	%0	
Feed Control	33%	30%	37%	40%	22%	21%	
Total	100%	100%	100%	100%	100%	100%	
					,		
I WAKe							
New Fabric Filters	%0	%0	%0	%0	27%	24%	
New LEWS	%0	%0	%0	%0	%0	%0	
New IWS	%0	%0	%0	%0	%0	%0	
New Carbon Injection	%0	%0	%0	%0	31%	27%	
New Carbon Bed	%0	%0	%0	%0	%0	%0	
New Quencher	38%	47%	28%	73%	10%	11%	
New Afterburner	%0	%0	%0	%0	%0	%0	
New Reheater	%0	%0	%0	%0	%0	%0	
Fabric Filter DOM, small	1%	1%	1%	1%	%0	%0	
Fabric Filter DOM, mod	3%	%0	2%	%0	%0	%0	
DESP DOM. small	%0	%0	%0	%0	%0	%0	
DESP DOM, mod	%0	%0	%0	%0	%0	%0	
WESP DOM. small	%0	%0	%0	%0	%0	%0	
	%0	%0	%0	%0	%0	%0	
IWS DOM. small	%0	%0	%0	%0	%0	%0	
IWS DOM, mod	%0	%0	%0	%0	%0	%0	
HEWS DOM. small	%0	%0	%0	%0	%0	%0	
HEWS DOM. mod	%0	%0	%0	%0	%0	%0	
LEWS DOM, small	%0	%0	%0	%0	%0	%0	
LEWS DOM, mod	%0	%0	%0	%0	%0	%0	
Combination DOM	%0	%0	%0	%0	%0	%0	
New DS	%0	%0	38%	42%	27%	30%	
Feed Control	58%	52%	31%	29%	4 4%	%8007	
Total	%00L	%00L	%00L	%00L	%001	%001	
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## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE, cont. (Before Consolidation)

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	Rec(70%) BTJ 11% 11% 11% 10% 10% 10% 10% 10% 10% 10%	80 80 80 80 80 80 80 80 80 80 80 80 80 8	000 000 000 000 000 000 000 000 000 00
	Pec(50%) Pec	86 % % % % % % % % % % % % % % % % % % %	22 00 8%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
	Floor(70%) R	6.5% % % % % % % % % % % % % % % % % % %	21,00% 00% 00% 00% 00% 00% 00% 00% 00% 00%
ı	Floor(50%)	30 30 30 30 30 30 30 30 30 30 30 30 30 3	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	mmercial Incinerators New Fabric Filters New WES New WES New WES New Carbon Injection New Carbon Injection New Carbon Injection New Carbon Injection New Afterburner New Spoly, mod DESP DOM, mod NESP DOM, mod NESP DOM, small NWS DOM, small NWS DOM, small NWS DOM, small LEWS DOM, small NWS DOM, small LEWS DOM, small NWS DOM,	New Fabric Filters New Fabric Filters New WS New WS New WS New WS New WS New Carbon legidin New Carbon legidin New Afterburner New Attenumer New Spott, mod NESP DOM, small NWS DOM, s	New Fabric Filters New Fabric Filters New LeWS New WS New Carbon Injection New Carbon Bed New Carbon Bed New Afferburer New Afferburer New Afferburer New Afferburer New Reheater Fabric Filter DOM, small Fabric Filter DOM, small Fabric Filter DOM, small NESP DOM, small WESP DOM, small LEWS DOM, mod Combnation DOM New DS New DS Feed Control

# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

	Cement Kilns	t Kilns	LWAKs	۱Ks	Commercial Incinerators	Incinerators		On-site Incinerators	inerators	
•	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% below	>20% below	<20% below	<20% below >20% below
			-							
Floor (50%)	%0	3%	%0	%0	10%	10%	10%	21%	4%	38%
Floor (70%)	%0	3%	%0	%0	10%	10%	10%	21%	2%	38%
Rec (50%)	%0	%9	%0	%0	10%	10%	10%	21%	4%	38%
Rec (70%)	%0	%9	%0	%0	10%	10%	10%	21%	2%	38%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	10%	23%	12%	42%
BTF-ACI (70%)	%0	%9	%0	13%	10%	10%	12%	21%	12%	42%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

25%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
Floor (50%)	\$22	\$3	\$6	\$22	\$4	\$57	-17%
Floor (70%)	\$15	\$2	\$5	\$18	\$4	\$44	-20%
Rec (50%)	\$24	\$3	\$6	\$23	\$4	\$61	-19%
Rec (70%)	\$17	\$3	\$5	\$20	\$4	\$50	-21%
BTF-ACI (50%)	\$33	\$5	\$9	\$41	\$24	\$111	-15%
BTF-ACI (70%)	\$25	\$4	\$8	\$37	\$24	\$98	-16%

- Compliance costs after consolidation include only the costs for those systems that will continue to burn
  waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning waste on-site.
- Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### Price pass through assumed:

25%

Option	On-site Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	\$2.27
BTF-ACI (70%)	\$2.27

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS

### (millions) (Includes Cost of Waste Diversion)

Price pass through assumed:

25%

Option	Total	
Floor (50%)	\$57	
Floor (70%)	\$44	
Rec (50%)	\$61	
Rec (70%)	\$50	
BTF-ACI (50%)	\$113	
BTF-ACI (70%)	\$100	

- Compliance costs after consolidation include the costs for those systems that will continue to burn
  waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop
  burning wastes do not incur compliance costs and therefore are excluded.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

25%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Floor (50%)	\$677,373	\$260,252	\$243,257	\$251,839	\$179,565
Floor (70%)	\$444,485	\$212,689	\$213,488	\$210,100	\$159,648
Rec (50%)	\$723,010	\$341,613	\$247,977	\$267,697	\$179,565
Rec (70%)	\$527,438	\$307,849	\$222,062	\$227,506	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$371,123	\$510,754	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$347,785	\$465,008	\$941,121

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

25%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$29	\$30	\$14	\$28
Floor (70%)	\$21	\$24	\$11	\$24
Rec (50%)	\$31	\$42	<b>\$14</b>	\$29
Rec (70%)	\$23	\$38	\$12	\$25
BTF-ACI (50%)	\$41	\$60	\$18	\$38
BTF-ACI (70%)	\$33	\$53	\$16	\$35

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

25%

NO!

		Cement Kilns			LWAKs		Con	Commercial Incinerators	ators	Priva	Private On-site Incinerators	rators
	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% belo	>20% belo
				-								
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%89	%0	37%
Rec (50%)	100%	%0	%0	100%	%0	%0	%06	%0	40%	%89	%0	37%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	<i>,</i> %0	10%	63%	%0	37%
BTF-ACI (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	28%	%0	45%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%85	%0	45%

Notes:

1. Percent of systems currently not meeting short term baseline break-even quantity: 0% 10% 15% Commercial Incinerators Private On-site Incinerators Cement Kilns LWAKs

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

25%

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<b></b>		Cement Kiins			LWANS				ators	LINGIE		S C C C C C C C C C C C C C C C C C C C
	Above	Above <20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below
Floor (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	%09	%0	20%
Floor (70%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	%09
Rec (50%)	94%	%0	%9	100%	%0	%0	%06	%0	10%	20%	%0	%09
Rec (70%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	%09
BTF-ACI (50%)	94%	%0	%9	75%	%0	25%	%06	%0	10%	48%	%0	25%
BTF-ACI (70%)	%26	%0	3%	%88	%0	13%	%06	%0	10%	48%	%0	25%

Notes:

 Percent of systems currently not meeting long term baseline break-even quantity: Cement Kilns 0% 10% 35%

LWAKs

Commercial Incinerators Private On-site Incinerators

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burnin	ng Waste	<u>'</u>		
Floor (50%)	0	<b>o</b> - '	~ <b>0</b>	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	0	16
BTF-ACI (50%)	0	0	0	20
BTF-ACI (70%)	0	0	0	20

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
0	0	3	42
ng Waste			
1	0	0	13
1	0	0	13
2	0	0	<b>13</b>
1	0	0	13
2	0	0	16
1	0	0	16
	Kilns  0  ng Waste  1  1  2  1	Kilns         LWAKs           0         0           ng Waste         1         0           1         0         0           2         0         0           1         0         0           2         0         0           2         0         0	Kilns         LWAKs         Incinerators           0         0         3           ng Waste         1         0         0           1         0         0         0           2         0         0         0           1         0         0         0           2         0         0         0           2         0         0         0           2         0         0         0

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning pelow break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	18%
BTF-ACI (70%)	0%	0%	0%	18%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

25%

		4		
	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	6%	0%	0%	12%
Rec (50%)	11%	0%	0%	12%
Rec (70%)	6%	0%	0%	12%
BTF-ACI (50%)	11%	0%	0%	15%
BTF-ACI (70%)	6%	0%	0%	15%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
			×			
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0.	3,170	51,040	54,210	2%
BTF-ACI (70%)	0	0	3,170	51,040	54,210	2%

- 1. Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

25%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	97,760	100,930	3%
Floor (50%)	11,530	0	3,170	111,330	126,030	4%
Floor (70%)	11,530	0	3,170	111,330	126,030	4%
Rec (50%)	28,490	0	3,170	111,330	142,990	4%
Rec (70%)	11,530	0	3,170	111,330	126,030	4%
BTF-ACI (50%)	28,490	7,380	3,170	123,210	162,250	5%
BTF-ACI (70%)	16,960	2,730	3,170	123,210	146,070	4%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers:
- 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

25%

MACT Option		nent Ins	LW	AKs		nercial erators		-site erators	то	TAL
·	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	. 0	0	131	231	   131	231
Floor (70%)	0	0	0	<b>0</b> ,	0	0	131	231	131	231
Rec (50%)	0	0	0	0	0	0	131	231	131	231
Rec (70%)	0	0	0	0	0	0	131	231	   131	231
BTF-ACI (50%)	0	0	0	0	l 0	0	139	252	 139	252
BTF-ACI (70%)	0	0	0	0	0	0	 139	252	139	252
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					[ '			•		

- Low-end estimates include employment losses associated only with those systems located
  at facilities where all systems stop burning. High-end estimates reflect all employment losses,
  including those associated with closing systems located at facilities where at least one system
  remains open. The low-end estimate assumes the possibility for employee reassignment
  within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

25%

MACT Option	t .	nent Ins	LW	AKs		nercial rators		site rators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0	0	98	116	119	137
Floor (70%)	21	21	0	0	0	0	98	116	   119	137
Rec (50%)	42	42	0	0	0	0	98	116	140	158
Rec (70%)	21	21	0	0	0	0	98	116	119	137
BTF-ACI (50%)	42	42	l 0.	5	0	0	106	124	] 148	171
BTF-ACI (70%)	21	21	l .0	3	0	0	106	124	l 127	148
									l	

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	etry					
Pollution Control Equipment	77	5	10	31	5	128
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	50	4	9	84	8	156
Permitting	1	0	1	4	1	7
Total	134	10	20	121	15	300

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	5	8	28	5	96
CEMs/Monitoring Equipment	<b>`6</b>	0	0	2	1	8
Labor Within Combustion Sector						
O&M	35	4	7	76	7	130
Permitting	1	0	1	4	1	7
Total	94	9	16	109	14	242

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	37	5	138
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector	,					
O&M	50	5	13	98	8	175
Permitting	1	0	1	4	1	7
Total	134	13	26	141	15	329

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	6	10	34	5	106
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	35	5	12	90	7	149
Permitting	1	0	1	3	1	7
Total	94	11	23	128	14	270

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

d	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	99	10	22	86	13	230
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	84	17	35	193	24	353
Permitting	1	0	1	4	1	8
Total	190	27	59	285	39	600

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government , On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	78	9	20	74	13	194
CEMs/Monitoring Equipment	6	0	0	. 2	. 1	8
Labor Within Combustion Sector						
O&M	67	14	35	170	22	308
Permitting	1	0	1	4	1	8
Total	152	23	56	249	37	518

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

25%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance co	osts passed the	ough		
Floor (50%)	\$5	\$5	\$4	\$5
Floor (70%)	\$3	\$3	\$3	\$3
Rec (50%)	\$5	\$5	\$4	\$5
Rec (70%)	\$4	\$4	\$3	\$3
BTF-ACI (50%)	\$11	\$11	\$8	\$9
BTF-ACI (70%)	\$8	\$8	\$7	\$7

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

PRELIMINARY ECONOMIC IMPACT RESULTS

# NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

		J	Cement Kilns	St				LWAKs				Commer	Commercial Incinerators	rators			On-site	On-site Incinerators	ors			Govern	Government On-sites	sites	
	<10%	10-20%	21-50%	<10% 10-20% 21-50% 51-75% >75%	>75%		<10% 10-20% 21-50%	21-50%	51-75%	>75%	<10%	10-20% 21-50%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	%£/<	<10%	10-20% 21-50% 51-75%	21-50%		>75%
•																									
Floor (50%) 18%	18%	%6	42%	21%	%6	13%	13%	20%	. 722%	%0	%08	10%	10%	%0	%0	46%	13%	35%	4%	2%	33%	33%	19%	2%	10%
Floor (70%)	33%	18%	30%	15%	3%	13%	38%	38%	13%	%0	85%	2%	10%	%0	%0	46%	19%	79%	4%	2%	48%	19%	19%	2%	10%
Rec (50%)	15%	12%	39%	21%	12%	%0	%0	75%	25%	%0	%08	15%	%9	%0	%0	40%	13%	40%	4%	2%	33%	33%	19%	2%	10%
Rec (70%)	30%	18%	27%	18%	%9	%0	%0	88%	13%	%0	85%	10%	2%	%0	%0	40%	17%	37%	4%	2%	48%	19%	19%	%9	10%
BTF-ACI (50%)	%9	3%	33%	33%	24%	%0	%0	%89	13%	25%	%02	72%	2%	%0	%0	21%	21%	46%	%9	%9	24%	14%	38%	10%	14%
BTF-ACI (70%) 24%	24%	%6	18%	33%	15%	%0	%0	63%	25%	13%	%02	72%	2%	%0	%0	23%	72%	40%	%9	%9	33%	10%	33%	10%	14%

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

Cement Kilns	Cement Kiins	nent Kilns			~		-	LWAKs				Соште	Commercial incinerators	ators			ő	On-site Incinerators	tors	-
	<10%	<10% 10-20% 21-50% 51-75% >75%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10% 10-20%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%
															-					
Floor (50%)	48%	21%	30%	%0	%0	25%	20%	25%	%0	%0	%06	%0	%0	2%	%9	52%	13%	19%	4%	12%
Floor (70%)	64%	18%	18%	%0	%0	38%	20%	13%	%0	%0	%06	%0	%0	2%	%9	26%	12%	17%	%8	%8
Rec (50%)	48%	21%	30%	%0	%0	%0	38%	63%	%0	%0	%06	%0	%0	2%	%9	52%	12%	17%	4%	15%
Rec (70%)	52%	30%	18%	%0	%0	%0	63%	38%	%0	%0	%06	%0	2%	%0	2%	26%	10%	15%	8%	12%
BTF-ACI (50%)	27%	27%	45%	%0	%0	%0	13%	75%	13%	%0	%06	%0	%0	2%	2%	40%	13%	23%	12%	12%
BTF-ACI (70%)	39%	30%	30%	%0	%0	%0	38%	%89	%0	%0	%06	%0	%0	%9	%9	44%	15%	19%	10%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy sawings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

		Cement Kilns			LWA Kilns			Commercial Incinerators		0	On-site Incinerators	5
	Operating	Sperating Profit Margin	% Margin after	Operating Profit Margin	ofit Margin	% Margin after	odo	Operating Profit Margin	% Margin after	Operating	Operating Profit Margin	% Margin after
Options	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule
Floor (50%)	(\$15)	-14%	40%	(\$25)	-31%	45%	(\$3)	-3%	57%	(\$23)	%2-	61%
Floor (70%)	(\$10)	%6-	74%	(\$21)	-25%	48%	(\$8)	-2%	924	(\$21)	%9-	61%
Rec (50%)	(\$15)	-14%	%02	(\$31)	-44%	36%	(6\$)	-3%	%29	(\$23)	%2-	%09
Rec (70%)	(\$11)	-10%	73%	(\$34)	41%	38%	(\$\$)	.2%	57%	(\$22)	%9-	.%19
BTF-ACI (50%)	(\$34)	-29%	24%	(\$48)	-58%	27%	(\$7)	-3%	67%	(\$27)	%8-	62%
BTF-ACI (70%)	(\$25)	-22%	63%	(\$44)	-53%	30%	(\$7)	3%	22%	(\$26)	%8- -	63%

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton + average total annual compliance cost per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost for the most efficient combustion sector. As this is a static model, we have capped the price pass-through using the combustion systems expected to remain burning hazardous waste even though the original pass-through value included some spected to stop burning. This is a better approximation of the impeatus combustiors have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those

systems that continue to burn hazardous waste.

2. Operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.

3. Percentage Operating Profit Margin = average operating profits to not / (weighted average price per ton + assumed price increase due to compliance costs passed through). Percentage profit margin after the rule is calculated using the same formula with post-rule operating profits and prices.

4. Change in operating profits per ton = Post-rule operating profits and prices.

5. Change in operating profits margin profits margin is Baseline operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin after the rule by one plus the percentage change in the operating profit margin. For consistency, baseline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### LIST OF EXHIBITS

### (75% Price Pass-Through; PM CEM Option 1: Required for All Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Total Cost of Waste Diverted from On-Site Systems

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations) (Includes Cost of Waste Diversion)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$24	\$3	\$8	<b>\$</b> 40	\$7	\$83
Floor (70%)	\$16	\$3	\$8	\$36	\$7	\$69
Rec (50%)	\$26	\$4	\$8	\$44	\$7	\$89
Rec (70%)	\$19	\$4	\$8	\$40	\$7	\$77
BTF-ACI (50%)	\$34	\$5	\$11	\$67	\$27	\$144
BTF-ACI (70%)	\$27	\$5	\$11	\$62	\$26	\$130

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

Option	ıs	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems		33	10	26	138	25
	Floor (50%)	\$728,353	\$312,665	\$322,837	\$292,830	\$281,064
	Floor (70%)	\$495,465	\$265,102	\$294,313	\$259,041	\$261,146
	Rec (50%)	\$773,990	\$394,025	\$323,198	\$321,088	\$281,064
	Rec (70%)	\$578,418	\$360,261	\$297,774	\$289,350	\$261,146
	BTF-ACI (50%)	\$1,043,019	\$508,367	\$435,023	\$484,470	\$1,061,809
	BTF-ACI (70%)	\$818,226	\$464,470	\$411,798	\$447,559	\$1,042,619

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
	4			
Floor (50%)	\$31	\$37	\$134	\$20,110
Floor (70%)	\$23	\$31	\$129	\$19,447
Rec (50%)	\$33	\$49	\$147	\$20,225
Rec (70%)	\$26	\$45	\$139	\$19,575
BTF-ACI (50%)	\$44	\$66	\$154	\$18,185
BTF-ACI (70%)	\$35	\$59	\$145	\$18,085

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
\$74	\$114	\$658	\$36,325
\$31	\$37	\$134	\$20,110
\$23	\$31	\$129	\$19,447
\$33	\$49	\$147	\$20,225
\$26	\$45	\$139	\$19,575
\$44	\$66	\$154	\$18,185
\$35	\$59	\$145	\$18,085
	\$74 \$31 \$23 \$33 \$26 \$44	Kilns       Kilns         \$74       \$114         \$31       \$37         \$23       \$31         \$33       \$49         \$26       \$45         \$44       \$66	Kilns         Kilns         Incinerators           \$74         \$114         \$658           \$31         \$37         \$134           \$23         \$31         \$129           \$33         \$49         \$147           \$26         \$45         \$139           \$44         \$66         \$154

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

	<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
Cement Kilns	0	0	8	15	10
LWA Kilns	0	0	8	3	0
Commercial Incinerators	3	1	1	<sup>1</sup> , <b>1</b>	20
On-site Incinerators	48	13	11	11	56

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

	<0%	0% - 10%	11% - 25%	26% - 50%	>50%
Cement Kilns	0	0	0	2	31
LWA Kilns	0	0	0	0	10
Commercial Incinerators	3	0	3	8	13
On-site Incinerators	48	8	24	19	40

- 1. Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- 2. Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

BTF-ACI(70%	52 00% 00% 00% 00% 00% 00% 00% 00	50 50 50 50 60 60 60 60 60 60 60 60 60 6
BTF-ACI(50%) BTF	61 60 60 60 60 60 60 60 60 60 60	63 63 63 63 63 63 63 63 63 63
Rec(70%) BT	278 00% 00% 33% 00% 00% 00% 00% 00% 00% 00%	00% 88% 00% 00% 00% 00% 00% 00% 00% 00%
Rec(50%) F	600004 888888888888888888888888888888888	0000 00088 0000888 0000888 00008888 000088888
Floor(70%) F	27 00% 33% 00% 00% 00% 00% 12% 12%	0000088 000000000000000000000000000000
Floor(50%)	33 85 85 85 85 85 85 85 85 85 85	0 0 0 0 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
	Kilns New Fabric Filters New LEWS New LEWS New IWS New Carbon lajection New Carbon Bed New Carbon Bed New Quencher New Afterburner New Afterburner New Reheater Fabric Filter DOM, small Fabric Filter DOM, mod DESP DOM, mod DESP DOM, mod WESP DOM, mod HEWS DOM, small WS DOM, mod LEWS DOM, small LEWS DOM, small HEWS DOM, small LEWS DOM, mod Combination DOM New DS Feed Control	New Fabric Filters New LEWS New IWS New IWS New IWS New Oarbon Injection New Carbon Bed New Carbon Bed New Carbon Bed New Carbon Bed New Afterburner New Serbeater Fabric Filter DOM, small DESP DOM, small NESP DOM, small NESP DOM, small NEWS DOM, small HEWS DOM, small HEWS DOM, small HEWS DOM, small HEWS DOM, small LEWS DOM, small LEWS DOM, small LEWS DOM, small LEWS DOM, small New DS Feed Control None None None
	Cement Kill so New	LWAKS  DRAFT - NOT FOR DISTRIBUTION: 27-J.C:MYLIVELI\COMBUSTI\RIB_D12.WB1
		T FOR DISTR
		DRAFT - NO

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES cont (Before Consolidation)

F-ACI(70%	60000000000000000000000000000000000000	8 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
-ACI(50%) BT	00 80 80 80 80 80 80 80 80 80 80 80 80 8	888 888 888 888 888 888 888 888 888 88	388 489 489 480 480 480 480 480 480 480 480
Rec(70%) BTF	\$2 \$2 \$2 \$2 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3 \$3	60 60 60 60 60 60 60 60 60 60 60 60 60 6	4,4
Rec(50%)	00000000000000000000000000000000000000	7,000 to 2,000 to 2,0	29 8,00 8,00 9,
Floor(70%)	52 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00000000000000000000000000000000000000	4 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Floor(50%)	## 00000 ## 000000 ## ## 000 #	00000F00000000000000000000000000000000	%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
	Commercial Incinerators  New Fabric Filters  New LEWS  New WISS  New Carbon Injection  New Carbon Injection  New Carbon Injection  New Affebruner  New Affebruner  New Affebruner  New Affebruner  New Affebruner  New Affebruner  New Reheater  Pabric Filter DOM, small  Fabric Filter DOM, mod  DESP DOM, mod  WESP DOM, mod  WESP DOM, small  WS DOM, small  HEWS DOM, small  LEWS DOM, small  CEWS DOM, small  CEWS DOM, small  CEWS DOM, small  NWS DOM, small	On-Site Incinerators  New Texps  New LEWS  New WWS  New WS  New Carbon Injection  New Carbon Bed  New Carbon Small  New Carbon Small  New DOM, mod  HEWS DOM, small  New DOM, small  HEWS DOM, small  HEWS DOM, small  HEWS DOM, small  HEWS DOM, mod  Carbination DOM  New DS  Feed Control  New DS  Feed Control  None	Government On-site Incinerators New Fabric Filess New LENS New WISS New Wishon Bed New Carbon Injection New Carbon Bed New Carbon Bed New Alterburner New Afterburner New Reheater Fabric Filler DOM, small Fabric Filler DOM, small PESP DOM, small WESP DOM, mod WESP DOM, mod WESP DOM, mod WESP DOM, mod LENS DOM, mod LEWS DOM, small NW DOM, mod Combination DOM New DS Feed Control New DS

## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

		Floor(50%)	Floor(70%)	Rec(50%)	Rec(70%) BT	BTF-ACI(50% BTF-ACI(70%	ACI(70%	
Cement Kilns	Kilns							
	New Fabric Filters	32%	35%	33%	30%	39%	39%	
	New LEWS	%0	%0	%0	%0	%0 *	%0	÷.
	New IWS	%0	%0	%0	%0	%0	%0 0	
	New Carbon Injection	%0 0	%0	%0 0	%0 0	24%	24%	
	New Carbon Bed	%0	%0	%0	%0	%0	%)	
	New Quencher	24%	32%	23%	27%	13%	15%	
	New Afterburner	%0 0	% <u>0</u>	%0	%0 0	%0 0	%0 0	
	New Reheater	%0	%0 0	%0	%0	%0	%0	
	Fabric Filter DOM, small	%0	%0	%0	%0	%	%) (	
	Fabric Filter DOM, mod	3%	2%	3%	2%	1%	1%	
	DESP DOM, small	4%	%0	4%	%0	1%	%0	
	DESP DOM, mod	%0	%0	%0	%0	%	%0	
	WESP DOM, small	%0	%0	%0	%0	%0	%0	
	WESP DOM, mod	%0	%0	%0	%0	%0	%0	
	IWS DOM, small	%0	%0	%0	%0	%0	%0	
	IWS DOM, mod	%0	%0	%0	%0	%0	%0	
	HEWS DOM. small	%0	%0	%0	%0	%0	%0	
	HEWS DOM, mod	%0	%0	%0	%0	%0	%0	
	LEWS DOM, small	%0	%0	%0	%0	%0	%0	
	LEWS DOM. mod	%0	%0	%0	%0	%0	%0	
	Combination DOM	%0	%0	%0	%0	%0	%0	
	New DS	%0	%0	%0	%0	%0	%0	
	Feed Control	33%	30%	37%	40%	22%	21%	
	Total	100%	100%	100%	100%	100%	100%	
WAKS								
	New Fabric Filters	%0	%0	%0	%0	27%	24%	
	New LEWS	%0	%0	%0	%0	%0	%0	
	New IWS	%0	%0	%0	%0	%0	%0	
	New Carbon Injection	%0	%0	%0	%0	31%	27%	
	New Carbon Bed	%0	%0	%0	%0	%0	%0	
	New Ottencher	38%	47%	28%	29%	10%	11%	
	New Afferburner	%0	%0	%0	%	%0	%0	
	New Alleiballies	%0	? °	%0	%	%0	%0	
	Fabric Elfor DOM small	1%	7 6	7 %	7 %	%0	%0	
	Fabric Filter DOM, and	%-	%-0	%-	%-	%0	%0	
	DESP DOM small	%0	%0	%0	%0	%0	%U	
	DESP DOM, Single	%0	%00	%0	% 0 0	% 0	%0	
	MESP DOM, mod	%0	% ~	%	% 0 0	%0	%	
	WEST DOM, SHIRIN	9/0	%0	%0	%0	%	% %	
	MASS DOM, EBS	%0	% 0	%0	%0	% %	%0	
	IWO DOM, SHall	0/O	% 0	%0	%0	%0	%0	
	IWS DOM, IIIOU	% o	% ò	%0	%0	0 0	8 0	
	HEWS DOM, SHall	% 6	% ò	%0	%0	° 0	%	
	HEWS DOM, mod	%0	%0	%	%0	%0	%0	
	LEWS DOM, small	%0	% 6	%0	%0	%0	%0	
	LEWS DOM, mod	%0	%0	%0	%°	%0	%0	
	Combination DOM	%0 0	%0	%0	%n	%0	%0 0	
	New DS	%0	%°	38%	42%	27%	30%	
	Feed Control	28%	25%	31%	29%	4%	%8	
	Total	100%	100%	100%	100%	100%	100%	
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## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE, cont. (Before Consolidation)

F-ACI(70%	20 20 20 20 20 20 20 20 20 20 20 20 20 2	33 30 30 30 30 30 30 30 30 30	20 0 E 0 0 4 4 E 0 0 0 0 0 0 0 0 0 0 0 0
ACI(50% BT	61 80 80 80 80 80 80 80 80 80 80	28 20 20 20 20 20 20 20 20 20 20 20 20 20	22 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
Rec(70%) BTF-	44.00 44.00 45.00 45.00 46	4 84 84 84 84 84 84 84 84 84 84 84 84 84	014 000 000 000 000 000 000 000 000 000
Rec(50%) Re	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00 00 00 00 00 00 00 00 00 00 00 00 00	20 20 20 20 20 20 20 20 20 20 20 20 20 2
Floor(70%) R	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	48 00 00 00 00 00 00 00 00 00 00 00 00 00	00000000000000000000000000000000000000
Floor(50%) Fi	100 21,2%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	\$	222 200 200 200 200 200 200 200 200 200
	Commercial Incinerators New Fabric Filets New LEWS New WES New WES New WES New Wes New Carbon Injection New Carbon Bed New Carbon Med New Carbon Bed New Carbon Bed New Carbon Bed New Carbon Med New Seneate Pabric Filet DOM, small Fabric Filet DOM, small DESP DOM, small NWS DOM, mod NESP DOM, small NWS DOM, mod HEWS DOM, small HEWS DOM, small LEWS DOM, small New DS New DS New DS Feed Control	On-Site Incinerators New Fabric Filters New LEWS New WS New WS New WS New Carbon Injection New Carbon Bed New Carbon Bed New Quencher New Afterbumer New DOM, mod HEWS DOM, small New SDOM, small HEWS DOM, small	Government On-Site Incinerators  New EBMS  New WES  New WES  New WES  New WES  New WES  New Carbon Injection  New Carbon Bed  New Quencher  New Quencher  New Afferbumer  New DESP DOM, small  EENS DOM, small  NES DOM, small  NES DOM, small  HEWS DOM, small  NES DOM, small  HEWS DOM, mod  Combination DOM  New DS  Feed Control

# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

	Cement Kilns	t Kilns	LWAKS	Ks	Commercial Incinerators	Incinerators		On-site Incinerators	inerators	
	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% pelow	>20% below	<20% below	<20% below >20% below
Floor (50%)	%0	3%	%0	%0	10%	10%	%0	31%	4%	40%
Floor (70%)	%0	3%	%0	%0	10%	10%	2%	29%	4%	40%
Rec (50%)	%0	%9	%0	%0	10%	10%	%0	31%	4%	40%
Rec (70%)	%0	%9	%0	%0	10%	10%	2%	76%	4%	40%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	2%	33%	%8	46%
BTF-ACI (70%)	%0	%9	%0	25%	10%	10%	2%	31%	%8	46%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

75%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
4.							
Floor (50%)	\$24	\$3	\$7	\$27	\$7	\$68	-18%
Floor (70%)	\$16	\$3	\$6	\$23	\$7	\$55	-20%
Rec (50%)	\$26	\$4	\$7	\$28	\$7	\$72	-19%
Rec (70%)	\$19	\$4	\$6	\$25	\$7	\$60	-21%
BTF-ACI (50%)	\$34	\$5	\$10	\$48	\$27	\$124	-14%
BTF-ACI (70%)	\$27	\$5	\$9	\$44	\$26	\$111	-15%

- Compliance costs after consolidation include only the costs for those systems that will continue to burn waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site incinerators that decide to stop burning waste on-site.
- Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### TOTAL COST OF WASTE DIVERTED FROM ON-SITE SYSTEMS THAT STOP BURNING (millions)

Price pass through assumed:

75%

Option	On-site Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	\$2.27
BTF-ACI (70%)	\$2.27

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS (millions)

### (Includes Cost of Waste Diversion)

Price pass through assumed:

75%

	Option	Total	
	Floor (50%)	\$68	
₹	Floor (70%)	\$55	
	Rec (50%)	\$72	
	Rec (70%)	\$61	
	BTF-ACI (50%)	\$126	
	BTF-ACI (70%)	\$113	

- Compliance costs after consolidation include the costs for those systems that will continue to burn
  waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop
  burning wastes do not incur compliance costs and therefore are excluded.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

75%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Floor (50%)	\$728,353	\$312,665	\$298,694	\$306,987	\$281,064
Floor (70%)	\$495,465	\$265,102	\$268,924	\$265,247	\$261,146
Rec (50%)	\$773,990	\$394,025	\$303,414	\$322,844	\$281,064
Rec (70%)	\$578,418	\$360,261	\$277,499	\$282,653	\$261,146
BTF-ACI (50%)	\$1,043,019	\$508,367	\$426,560	\$562,538	\$1,061,809
BTF-ACI (70%)	\$818,226	\$464,470	\$403,222	\$514,958	\$1,042,619

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

75%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$31	\$37	\$17	\$36
Floor (70%)	\$23	\$31	\$14	\$32
Rec (50%)	\$33	\$49	\$17	\$36
Rec (70%)	\$26	\$45	\$15	\$33
BTF-ACI (50%)	\$44	\$66	\$21	\$49
BTF-ACI (70%)	\$35	\$59	\$19	\$45

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

75%

		Cement Kilns			LWAKs		Com	Commercial Incinerators	ators	Privat	Private On-site Incinerators	erators
	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below
												٠
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Rec (50%)	100%	%0	· %0	100%	%0 ·	%0	%06	%0	10%	%89	%0	37%
Rec (70%)	100%	<b>%0</b>	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
BTF-ACI (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	62%	%0	38%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	62%	%0	38%

Percent of systems currently not meeting short term baseline break-even quantity:
 Cement Kilns 0%
LWAKs 0%
Commercial Incinerators 10%
Private On-site Incinerators 15%

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

75%

		Cement Kilns			LWAKs		Com	Commercial Incinerators	rators	Privat	Private On-site Incinerators	erators
	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below
Floor (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	%09	%0	%09
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%09	%0	20%
Rec (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	%09	%0	20%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%09	%0	20%
BTF-ACI (50%)	100%	%0	%0	%88	%0	13%	%06	%0	10%	%09	%0	%09
BTF-ACI (70%)	100%	%0	%0	%88	%0	13%	%06	%0	10%	20%	%0	20%

Percent of systems currently not meeting long term baseline break-even quantity:	%0	%0	10%	35%
. Percent of systems currently not meeting	Cement Kilns	LWAKs	Commercial Incinerators	Private On-site Incinerators

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
0	0	3	26
ng Waste			
0	0	0	16
0	0	0	16
0	0	0	16
0	0	0	16
0	0	0	20
0	0	0	20
	Kilns  0  ng Waste  0  0  0  0  0	Kilns         LWAKs           0         0           ng Waste         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0	Kilns         LWAKs         Incinerators           0         0         3           ng Waste         0         0           0         0         0           0         0         0           0         0         0           0         0         0           0         0         0           0         0         0           0         0         0

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	42
Incremental Facilities Likely to Stop Burnir	ng Waste	, , , , , , , , , , , , , , , , , , , ,		
Floor (50%)	1	0	0	13
Floor (70%)	0	0	0	13
Rec (50%)	1	0	0	13
Rec (70%)	0	0	0	13
BTF-ACI (50%)	0	0	0	13
BTF-ACI (70%)	0	0	0	13

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning pelow break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	18%
BTF-ACI (70%)	0%	0%	0%	18%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	0%	0%	0%	12%
Rec (50%)	6%	0%	0%	12%
Rec (70%)	0%	0%	0%	12%
BTF-ACI (50%)	0%	0%	0%	12%
BTF-ACI (70%)	0%	0%	0%	12%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0	3,170	51,040	54,210	2%
BTF-ACI (70%)	0	0	3,170	51,040	54,210	2%

- 1. Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

75%

		Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
	Baseline	0	0	3,170	97,760	100,930	3%
i	Floor (50%)	11,530	0	3,170	111,330	126,030	4%
	Floor (70%)	0	0	3,170	111,330	114,500	3%
	Rec (50%)	11,530	0	3,170	111,330	126,030	4%
	Rec (70%)	0	0	3,170	111,330	114,500	3%
	BTF-ACI (50%)	0	0	3,170	111,330	114,500	3%
	BTF-ACI (70%)	0	2,730	3,170	111,330	117,230	4%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers:
- 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

75%

MACT Option		nent Ins	LW	AKs		nercial erators		-site erators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	0	0	   131	231	   131	231
Floor (70%)	0	0	0.	0	0	0	   131	231	   131	231
Rec (50%)	0	0	0	0	0	0	   131	231	   131	231
Rec (70%)	0	0	0	0	l 0	0	131	231	   131 	231
BTF-ACI (50%)	0	0	0	0	0	0	   139	239	139	239
BTF-ACI (70%)	0	0	0	0	0	0	139	239	139	239

- Low-end estimates include employment losses associated only with those systems located
  at facilities where all systems stop burning. High-end estimates reflect all employment losses,
  including those associated with closing systems located at facilities where at least one system
  remains open. The low-end estimate assumes the possibility for employee reassignment
  within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

75%

MACT Option		nent Ins	LW.	AKs		nercial erators	On- Incine		то	ΓAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0	0	98	116	119	137
Floor (70%)	0	0	0	0	0	0	98	116	98	116
Rec (50%)	21	21	0	0	0	0	98	116	119	137
Rec (70%)	0	0	0	0	0	0	98 '	116	.   98 	116
BTF-ACI (50%)	0	0	0	3	0	0	98 '	116	98	119
BTF-ACI (70%)	0.	0	0	3	0	0	98	116	98 	119
			<b>l</b>		1		•		 	
		,					1		•	

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

						•
	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	stry					
Pollution Control Equipment	77	5	10	31	5	128
CEMs/Monitoring Equipment	25	6	14	59	29	132
Labor Within Combustion Sector						
O&M	50	4	9	83	8	155
Permitting	1	. 0	1	4	1	7
Total	153	16	34	176	43	423

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Fir(70%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	51	. 5	8	28	5	96
CEMs/Monitoring Equipment	25	6	14	57	29	131
Labor Within Combustion Sector						
O&M	35	4	8	76	7	130
Permitting	1	0	1	4	: 1	7
Total	113	15	30	164	42	364

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	37	5	138
CEMs/Monitoring Equipment	25	6	14	56	29	130
Labor Within Combustion Sector						
O&M	50	5	13	98	8	175
Permitting	1	0	1	4	1	7
Total	153	19	40	195	43	450

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	6	10	34	5	106
CEMs/Monitoring Equipment	25	6	14	55	29	128
Labor Within Combustion Sector						
O&M	35	5	12	90	7	150
Permitting	1	0	1	3	1	7
Total	113	17	37	182	42	391

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	99	10	22	90	13	234
CEMs/Monitoring Equipment	25	6	15	63	29	137
Labor Within Combustion Sector						
O&M	84	17	35	201	24	361
Permitting	1	0	1	4	1	8
Total	209	33	73	358	67	740

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	78	9	20	77	13	197
CEMs/Monitoring Equipment	25	6	14	62	29	137
Labor Within Combustion Sector						
O&M	67	14	35	176	22	314
Permitting	1	0	1	4	1	8
Total	171	29	71	319	65	655

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance co	osts passed thr	ough		
Floor (50%)	\$16	\$16	\$15	\$15
Floor (70%)	\$11	\$11	\$11	\$11
Rec (50%)	\$16	\$16	\$15	\$15
Rec (70%)	\$12	\$12	\$12	\$12
BTF-ACI (50%)	\$36	\$36	\$28	\$30
BTF-ACI (70%)	\$26	\$26	\$22	\$23

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

# NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

		J	Cement Kilns	su				LWAKs				Commer	Commercial Incinerators	rators	-		On-sit	On-site Incinerators	ors			Govern	Government On-sites	fes	
	<10%	10-20%	21-50%	<10% 10-20% 21-50% 51-75% >75%	>75%	<10%	<10% 10-20% 21-50%		51-75%	>75%	<10%	10-20% 21-50%		51-75%	>75%	<10%	10-20% 21-50%		51-75%	>75%	<10%	10-20%	10-20% 21-50% 51-75%		>75%
				3																			s		
Floor (50%)	15%	%6	39%	24%	12%	%0	25%	20%	72%	%0	%08	10%	10%	%0	%0	33%	21%	37%	%9	4%	24%	14%	43%	10%	10%
Floor (70%)	30%	%6	36%	21%	3%	13%	13%	20%	72%	%0	85%	%9	10%	%0	%0	38%	25%	27%	%9	4%	33%	14%	33%	2%	14%
Rec (50%)	3%	21%	36%	21%	18%	%0	%0	75%	25%	%0	%08	10%	10%	%0	%0	27%	19%	48%	%0	%9	24%	14%	43%	10%	10%
Rec (70%)	27%	12%	30%	24%	%9	%0	%0	75%	25%	%0	85%	10%	2%	%0	%0	33%	23%	38%	2%	4%	33%	14%	33%	2%	14%
BTF-ACI (50%)	3%	%9	30%	30%	30%	%0	%0	38%	38%	25%	%09	30%	10%	%0	%0	13%	25%	46%	%8	8%	19%	10%	33%	24%	14%
BTF-ACI (70%)	21%	%9	15%	36%	21%	%0	%0	38%	20%	13%	%02	25%	%9	%0	%0	15%	31%	38%	10%	%9	24%	14%	24%	19%	19%

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs]
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

	>75%	13%	10%	15%	12%	12%	12%
tors	51-75%	15%	19%	12%	15%	23%	19%
On-site Incinerators	21-50%	10%	40%	12%	12%	19%	12%
s-uO	10-20%	13%	10%	13%	10%	10%	21%
	<10%	48%	52%	48%	25%	37%	37%
	>75%	10%	2%	2%	%9	%9	2%
rators	51-75%	%0	2%	2%	2%	2%	2%
Commercial Incinerators	21-50%	%0	%0	%0	%0	%0	%0
Сошт	10-20%	%0	%0	%0	%0	%0	%0
	<10%	%06	%06	· %06	%06	%06	%06
	>75%	%0	%0	%0	%0	%0	%0
	51-75%	%0	%0	%0	%0	25%	13%
LWAKs	21-50%	38%	25%	75%	75%	%89	75%
1	10-20%	20%	20%	25%	25%	13%	13%
	<10%	13%	25%	%0	%0	%0	%0
-	>75%	%0	%0	%0	%0	%0	%0
	51-75%	%0	%0	%0	%0	3%	3%
Cement Kilns	21-50%	30%	21%	30%	21%	45%	36%
Cer	<10% 10-20% 21-50% 51-75% >75%	30%	18%	30%	27%	27%	24%
	<10%	36%	61%	39%	52%	24%	36%
		Floor (50%)	Floor (70%)	Rec (50%)	Rec (70%)	BTF-ACI (50%)	BTF-AC! (70%)

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy savings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

		Cement Kilns			LWA Kilns			Commercial Incinerators		_	On-site incinerators	ırs
	Operating F	Profit Margin	Derating Profit Margin   % Margin after	Operating Profit Margin	ofit Margin	% Margin after	ō	Operating Profit Margin	% Margin after	Operating	Operating Profit Margin	% Margin after
Options	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule
						_						
Floor (50%)	(\$5)	-12%	71%	(\$20)	-31%	44%	(\$1)	-2%	21%	(\$19)	% <del>8</del> -	%09
Floor (70%)	(\$4)	%6 <del>-</del>	74%	(\$19)	-28%	46%	(\$3)	-2%	21%	(\$21)	%2-	%09
Rec (50%)	(\$5)	-12%	71%	(\$32)	43%	36%	(\$1)	-2%	21%	(\$20)	%8-	%09
Rec (70%)	(\$4)	%6 <del>-</del>	73%	(\$32)	-45%	37%	(\$3)	-2%	21%	(\$21)	%8-	%09
BTF-ACI (50%)	(\$12)	-24%	61%	(\$31)	-48%	34%	\$14	-1%	28%	(\$14)	%6-	%09
BTF-ACI (70%)	(6\$)	-18%	%99	(\$34)	48%	33%	2\$	-2%	22%	(\$19)	%6 <del>-</del>	%09

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost for the most efficient combustion systems expect to the most efficient compusion as a set in model, we have capped the price pass-through using the combustion systems expected to remain burning hazardous waste even mough the original pass-through value included some systems expected to stop burning. This is a better approximation of the impetual sombustors have to raise prices, though it is not a precise precisor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste

Operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
 Deparating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
 Percentage Operating Profit Margin = average operating profits and prices.
 Percentage operating profits and prices.
 Change in operating profits per ton - baseline operating profits margin. Baseline operating profits margin of the percentage change in the operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin after the rule by one plus the percentage change in the operating profit margins. For consistency, baseline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### LIST OF EXHIBITS

### (75% Price Pass-Through; PM CEM Option 2: Not Required for Any Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$22	\$3	\$7	\$33	\$4	<b>\$6</b> 9
Floor (70%)	\$15	\$2	\$6	\$28	\$4	\$55
Rec (50%)	\$24	\$3	\$7	\$37	\$4	\$75
Rec (70%)	\$17	\$3	\$6	\$32	\$4	\$63
BTF-ACI (50%)	\$33	\$5	\$10	\$59	\$24	\$130
BTF-ACI (70%)	\$25	\$4	\$9	\$54	\$24	\$116

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$677,373	\$260,252	\$267,273	\$237,552	\$179,565
Floor (70%)	\$444,485	\$212,689	\$238,749	\$203,763	\$159,648
Rec (50%)	\$723,010	\$341,613	\$267,634	\$265,811	\$179,565
Rec (70%)	\$527,438	\$307,849	\$242,210	\$234,073	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$379,459	\$429,193	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$356,234	\$392,281	\$941,121

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (F00/)	<b>#20</b>	<b>*</b> 00	0440	
Floor (50%)	\$29	\$30	\$116	\$17,853
Floor (70%)	\$21	\$24	\$111	\$17,190
Rec (50%)	\$31	\$42	\$129	\$17,968
Rec (70%)	\$23	\$38	\$121	\$17,318
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Baseline	\$74	\$114	\$658	\$36,325
Compliance Costs				
Floor (50%)	\$29	\$30	\$116	\$17,853
Floor (70%)	\$21	\$24	\$111	\$17,190
Rec (50%)	\$31	\$42	\$129	\$17,968
Rec (70%)	\$23	\$38	\$121	\$17,318
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

	<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
Cement Kilns	0	0	8	15	10
LWA Kilns	0	0	8	3	. 0
Commercial Incinerators	3	1	1	1	20
On-site Incinerators	48	13	11	11	56

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

	<0%	0% - 10%	11% - 25%	26% - 50%	>50%
Cement Kilns	0	0	0	2	31
LWA Kilns	0	0	0	0	10
Commercial Incinerators	3	0	3	8	13
On-site Incinerators	. 48	8	24	19	40

- 1. Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- 2. Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

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## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES cont. (Before Consolidation)

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## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE, cont. (Before Consolidation)

PRELIMINARY ECONOMIC IMPACT RESULTS

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# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

		Cement Kilns	t Kilns	LWAKs	IKs	Commercial Incinerators	Incinerators		On-site Incinerators	inerators	
	1	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
		Term	Term	Term	Term	Term	Term	<20% below	>20% below	<20% below	<20% below >20% below
							ı				
Floor	Floor (50%)	%0	3%	%0	%0	10%	10%	10%	21%	4%	38%
Floor	Floor (70%)	%0	3%	%0	%0	10%	10%	10%	21%	2%	38%
Rec	Rec (50%)	%0	%9	%0	%0	10%	10%	10%	21%	4%	38%
Rec	Rec (70%)	%0	%9	%0	%0	10%	10%	10%	21%	2%	38%
BTF-ACI (50%)	(%09)	%0	%9	13%	25%	10%	10%	10%	23%	12%	42%
BTF-ACI (70%)	(%02)	%0	%9	%0	13%	10%	10%	12%	21%	12%	42%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

75%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
Floor (50%)	\$22	\$3	\$6	\$22	\$4	\$58	-17%
Floor (70%)	\$15	\$2	\$5	\$18	\$4	\$44	-20%
Rec (50%)	\$24	\$3	\$6	\$24	\$4	\$61	-19%
Rec (70%)	\$17	\$3	\$5	\$20	\$4	\$50	-21%
BTF-ACI (50%)	\$33	\$5	\$9	\$44	\$24	\$114	-13%
BTF-ACI (70%)	\$25	\$4	\$8	\$40	\$24	\$101	-13%

- Compliance costs after consolidation include only the costs for those systems that will continue to burn
  waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning waste on-site.
- Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### TOTAL COST OF WASTE DIVERTED FROM ON-SITE SYSTEMS THAT STOP BURNING (millions)

### Price pass through assumed:

**75%** 

	On-site
Option	Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	-\$0.73
BTF-ACI (70%)	\$0.19

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS

### (millions) (Includes Cost of Waste Diversion)

Price pass through assumed:

75%

Option	Total	
Floor (50%)	\$58	
Floor (70%)	\$44	
Rec (50%)	\$62	
Rec (70%)	\$50	
BTF-ACI (50%)	\$113	
BTF-ACI (70%)	\$101	

- Compliance costs after consolidation include the costs for those systems that will continue to burn
  waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site
  incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop
  burning wastes do not incur compliance costs and therefore are excluded.
- Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

75%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
		*			
Floor (50%)	\$677,373	\$260,252	\$243,257	\$248,774	\$179,565
Floor (70%)	\$444,485	\$212,689	\$213,488	\$210,100	\$159,648
Rec (50%)	\$723,010	\$341,613	\$247,977	\$264,165	\$179,565
Rec (70%)	\$527,438	\$307,849	\$222,062	\$227,506	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$371,123	\$502,744	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$347,785	\$456,605	\$941,121

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

75%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$29	\$30	\$14	\$28
Floor (70%)	\$21	\$24	\$11	\$24
Rec (50%)	\$31	\$42	\$14	\$29
Rec (70%)	\$23	\$38	\$12	\$25
BTF-ACI (50%)	\$41	\$60	\$18	\$47
BTF-ACI (70%)	\$33	\$53	\$16	\$43

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

**12**%

		Cement Kilns			LWAKs		Сош	Commercial Incinerators	ators	Privat	Private On-site Incinerators	erators
	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below
		· · · · · · · · · · · · · · · · · · ·										
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	40%	%59	%0	35%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
Rec (50%)	100%	%0	%0	100%	<sup>2</sup> %0	%0	%06	%0	10%	%59	%0	35%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
BTF-ACI (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%

Percent of systems currently not meeting short term baseline break-even quantity: Cement Kilns

LWAKs Commercial Incinerators Private On-site Incinerators

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; Includes systems currently burning below their break-even quantity)

Price pass through assumed:

75%

Hoor (50%)         Above         C20% below         >20% below         belo			Cement Kilns			LWAKs		Сош	Commercial Incinerators	ators	Privat	Private On-site Incinerators	erators
97%         0%         3%         100%         0%         90%         0%         10%         50%         0%           100%         0%         0%         0%         0%         10%         50%         0%           97%         0%         0%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%         0%           100%         0%         10%         50%         0%           100%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%           100%         0%         0%         0%         0%<		Above	<20% below	>20% below	Above	<20% below	>20% below	Above	<20% below	>20% below	Above	<20% below	>20% below
97%         0%								- Name and Street, Str					
100%0%0%0%0%0%0%0%0%97%0%0%0%0%0%0%0%100%0%0%0%0%0%0%0%100%0%0%0%0%0%0%0%	Floor (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	20%
97%         0%	Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	20%	<b>%</b> 0	20%
100%         0	Rec (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	20%
100%         0%         0%         13%         90%         0%         10%         52%         0%           100%         0%         0%         90%         0%         10%         52%         0%	Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	20%	%0	20%
100% 0% 10% 0% 0% 0% 10% 52% 0%	BTF-ACI (50%)	100%	%0	%0	%88	%0	13%	%06	<b>%0</b>	10%	52%	%0	48%
	BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	52%	%0	48%

Percent of systems currently not meeting long term baseline break-even quantity:	%0	%0	10%	35%
. Percent of systems currently not meeting	Cement Kilns	LWAKs	Commercial Incinerators	Private On-site Incinerators

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burnin	ng Waste			
Floor (50%)	0	0	0	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	0	16
BTF-ACI (50%)	· · · 0	0	0	16
BTF-ACI (70%)	0	0	0	16

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	42
Incremental Facilities Likely to Stop Burni	ng Waste			
Floor (50%)	1	0	0	13
Floor (70%)	0	0	0	13
Rec (50%)	1	0	0	13
Rec (70%)	0	0	0	13
BTF-ACI (50%)	0	0	0	10
BTF-ACI (70%)	0	0	0	10
BTF-ACI (70%)	0	0	0	10

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	15%
BTF-ACI (70%)	0%	0%	0%	15%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	0%	0%	0%	12%
Rec (50%)	6%	0%	0%	12%
Rec (70%)	0%	0%	0%	12%
BTF-ACI (50%)	0%	0%	0%	9%
BTF-ACI (70%)	0%	0%	0%	9%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	. 0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0	3,170	44,070	47,240	1%
BTF-ACI (70%)	0	0	3,170	46,210	49,380	1%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

75%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	97,760	100,930	3%
Floor (50%)	11,530	0	3,170	111,330	126,030	4%
Floor (70%)	0	0	3,170	111,330	114,500	3%
Rec (50%)	11,530	0	3,170	111,330	126,030	4%
Rec (70%)	Ō	0 .	3,170	111,330	114,500	3%
BTF-ACI (50%)	0	0	3,170	106,270	109,440	3%
BTF-ACI (70%)	0	0	3,170	106,270	109,440	3%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

75%

MACT Option		nent Ins	Commercial Incinerators		On-site Incinerators		TOTAL			
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	. 0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	0	0	131	226	   131	226
Floor (70%)	0	0	0	0	0	0	131	231	   131	231
Rec (50%)	0	0	0	0	0	0	131	226	131	226
Rec (70%)	0	0	0	0	0	0	   131 	231	131	231
BTF-ACI (50%)	0	0	0	0	0	0	   131 	231	   131	231
BTF-ACI (70%)	0	0	0	0	0	0	   131 	231	l 131	231
		,	1						  -	
	-									

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

75%

MACT Option	1	Cement Kilns		LWAKs		Commercial Incinerators		On-site Incinerators		TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0,	0	98	116	119	137
Floor (70%)	0	0	l 0	0	0	0	98	116	98	116
Rec (50%)	21	21	l 0	0	0	0	98	116	   119 	137
Rec (70%)	0	0	l 0	0	0	0	98	116	   98 	116
BTF-ACI (50%)	0	0	l 0	3	0	0	90 	108	90 	111
BTF-ACI (70%)	0	0	0	0	0	0	90	108	l 90	108
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- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	5	10	32	5	129
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	50	4	9	86	8	157
Permitting	1	0	1	4	1	7
Total	134	10	20	123	15	302

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Fir(70%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	5	8	28	5	96
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	35	4	7	76	7	130
Permitting	1	0	1	4	1	7
Total	94	9	16	109	14	242

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	38	5	139
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	50	5	13	100	8	176
Permitting	1	0	1	4	1	7
Total	134	13	26	143	15	331

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	51	6	10	34	5	106
CEMs/Monitoring Equipment	6	. 0	0	2	1 .	8
Labor Within Combustion Sector						
O&M	35	5	12	90	7	149
Permitting	1	0	1	3.	1	7
Total	94	11	23	128	14	270

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	99	10	22	93	13	237
CEMs/Monitoring Equipment	6	0	0	2	1	9
Labor Within Combustion Sector						
O&M	84	17	35	209	24	369
Permitting	1	0	1	4	. 1	8
Total	190	27	59	308	39	623

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

		Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution	n Control Indus	try					
Pollution Contro	ol Equipment	78	9	20	80	13	200
CEMs/Monitorin	g Equipment	6	0	0	2	1	9
Labor Within Combus	tion Sector						
	O&M	67	14	35	183	22	322
	Permitting	1	0	1	4	1	8
	Total	152	23	56	269	37	538

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

75%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance o	osts passed thr	ough		
Floor (50%)	\$15	\$15	\$13	\$14
Floor (70%)	\$10	\$10	\$9	\$9
Rec (50%)	\$15	\$15	\$13	\$14
Rec (70%)	\$11	\$11	\$10	\$10
BTF-ACI (50%)	\$34	\$34	\$25	\$28
BTF-ACI (70%)	\$25	\$25	\$20	\$22

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

PRELIMINARY ECONOMIC IMPACT RESULTS

# NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

'n-sites	51-75% >75%		5% 10%	5% 10%	5% 10%	5% 10%	10% 14%	10% 14%
Government On-sites	<10% 10-20% 21-50%		19%	19%	19%	19%	38%	33%
Gov	10-20%		33%	19%	33%	19%	14%	10%
	<10%	_	33%	48%	33%	48%	24%	33%
	>75%	,	2%	2%	2%	5%	%9	%9
rators	51-75%		4%	4%	4%	4%	%9	%9
On-site Incinerators	10-20% 21-50%		35%	78%	40%	37%	46%	40%
on-s	10-20%		13%	19%	13%	17%	21%	25%
	<10%		46%	46%	40%	40%	21%	23%
	>75%		%0	%0	%0	%0	%0	%0
erators	51-75%		%0	%0	%0	%0	%0	%0
Commercial Incinerators	21-50%		10%	10%	%9	2%	%9	2%
Comme	10-20%		10%	2%	15%	10%	25%	25%
	<10%		%08	85%	%08	85%	%02	%02
	>75%		%0	%0	%0	%0	25%	13%
	51-75%		25%	13%	72%	13%	13%	25%
LWAKS	21-50%		20%	38%	75%	%88	63%	63%
	<10% 10-20% 21-50%		13%	38%	%0	%0	%0	%0
	<10%		13%	13%	%0	%0	%0	%0
	>75%		<b>%</b> 6	3%	12%	%9	24%	15%
S	51-75%		21%	15%	21%	18%	33%	33%
Cement Kilns	21-50%		42%	30%	38%	27%	33%	18%
రి	<10% 10-20% 21-50% 51-75%		%6	18%	12%	18%	3%	%6
	<10%		18%	33%	15%	30%	%9	24%
			Floor (50%)	Floor (70%)	Rec (50%)	Rec (70%)	BTF-ACI (50%)	BTF-ACI (70%)

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs?
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

		S	Cement Kilns					LWAKs				Commer	Commercial Incinerators	tors		-	On-si	On-site Incinerators	ors	
	<10%	10-20%	<10% 10-20% 21-50% 51-75% >75%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%
,																				
Floor (50%)	48%	21%	30%	%0	%0	25%	20%	25%	%0	%0	%06	%0	%0	%9	2%	52%	13%	19%	4%	12%
Floor (70%)	64%	18%	18%	%0	<b>%</b> 0	38%	20%	13%	%0	%0	%06	%0	%0	2%	2%	26%	12%	17%	8%	8%
Rec (50%)	48%	21%	30%	%0	%0	%0	38%	63%	%0	%0	%06	%0	%0	2%	2%	52%	12%	17%	4%	15%
Rec (70%)	52%	30%	18%	%0	%0	%0	63%	38%	%0	%0	%06	%0	%9	%0	2%	%95	10%	15%	8%	12%
BTF-ACI (50%)	27%	27%	45%	%0	%0	%0	13%	75%	13%	%0	%06	%0	%0	%9	2%	40%	13%	23%	12%	12%
BTF-ACI (70%)	39%	30%	30%	%0	%0	%0	38%	%89	%0	%0	%06	%0	%0	2%	2%	44%	15%	19%	10%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy savings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

Options		9	_	ت	LWA Kiins			Commercial incinerators		•		
Options	Operating P	rofit Margin	perating Profit Margin   % Margin after	Operating Profit M	t Margin	% Margin after	Oper	Operating Profit Margin	% Margin after	Operating	Operating Profit Margin	% Margin after
	\$ Change	% Change	the Rule	\$ Change % C	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule
					-				_			
Floor (50%)	(\$\$)	-12%	71%	(\$14)	-25%	48%	\$2	-2%	57%	(\$13)	%9-	%09
Floor (70%)	(\$3)	%8-	75%	(\$14)	-22%	51%	(\$1)	-5%	24%	(\$14)	% <del>2</del> ~	62%
Rec (50%)	(\$\$)	-12%	71%	(\$26)	-37%	41%	\$1	-2%	21%	(\$14)	%9-	%09
Rec (70%)	(\$4)	%8-	74%	- (\$27)	-36%	41%	(\$1)	-2%	94.	(\$14)	%9-	61%
BTF-ACI (50%)	(\$11)	-23%	%29	(\$26)	43%	37%	\$16	-1%	%89	(\$13)	%8-	%09
BTF-ACI (70%)	(\$8)	-18%	%99	(\$27)	42%	38%	\$10	-1%	%89	(\$18)	%6-	%09

<sup>1.</sup> Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost per ton). Assumed price pass-through using the combustion systems expected to remain burning hazardows waste even frough the original pass-through using the combustion systems expected to stop burning. This is a better approximation of the impetus combustors have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste.

Coperating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
 Percentage Operating Profit Margin = average operating profits per ton / (weighted average price per ton + assumed price increase due to compliance costs passed through). Percentage profit margin after the rule is calculated using the same formula with post-rule operating profits and prices.
 Change in operating profits margin profits per ton - baseline operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin after the rule by one plus the percentage change in the operating profit margin. For consistency, baseline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### LIST OF EXHIBITS

### (100% Price Pass-Through; PM CEM Option 1: Required for All Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$24	\$3	\$8	\$40	\$7	\$83
Floor (70%)	\$16	\$3	\$8	\$36	\$7	\$69
Rec (50%)	\$26	\$4	\$8	\$44	\$7	\$89
Rec (70%)	\$19	\$4	\$8	\$40	\$7	\$77
BTF-ACI (50%)	\$34	\$5	\$11	\$67	\$27	\$144
BTF-ACI (70%)	\$27	\$5	\$11	\$62	\$26	\$130

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

				•	
Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$728,353	\$312,665	\$322,837	\$292,830	\$281,064
Floor (70%)	\$495,465	\$265,102	\$294,313	\$259,041	\$261,146
Rec (50%)	\$773,990	\$394,025	\$323,198	\$321,088	\$281,064
Rec (70%)	\$578,418	\$360,261	\$297,774	\$289,350	\$261,146
BTF-ACI (50%)	\$1,043,019	\$508,367	\$435,023	\$484,470	\$1,061,809
BTF-ACI (70%)	\$818,226	\$464,470	\$411,798	\$447,559	\$1,042,619

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Floor (50%)	\$31	\$37	\$134	\$20,110
Floor (70%)	\$23	\$31	\$129	\$19,447
Rec (50%)	\$33	\$49	\$147	\$20,225
Rec (70%)	\$26	\$45	\$139	\$19,575
BTF-ACI (50%)	\$44	\$66	\$154	\$18,185
BTF-ACI (70%)	\$35	\$59	\$145	\$18,085

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

\$74	<b>C444</b>		
	\$114	\$658	\$36,325
%) \$31	\$37	\$134	\$20,110
%) \$23	\$31	\$129	\$19,447
%) \$33	\$49	\$147	\$20,225
%) \$26	\$45	\$139	\$19,575
%) \$44	\$66	\$154	\$18,185
%) \$35	\$59	\$145	\$18,085
	\$23 \$%) \$33 \$%) \$26 \$%) \$44	9%)       \$23       \$31         9%)       \$33       \$49         9%)       \$26       \$45         9%)       \$44       \$66	9%)       \$23       \$31       \$129         9%)       \$33       \$49       \$147         9%)       \$26       \$45       \$139         9%)       \$44       \$66       \$154

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

	<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
Cement Kilns	0	0	8	15	10
LWA Kilns	0	0	8	3	0
Commercial Incinerators	3	1	1	. 1	20
On-site Incinerators	48	13	11	11	56

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

	<0%	0% - 10%	11% - 25%	26% - 50%	>50%
Cement Kilns	0 .	0	0	2	31
LWA Kilns	0	0	0	0	10
Commercial Incinerators	3	0	3	8	13
On-site Incinerators	48	8	24	19	40

- Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) - total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- 2. Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- 5. Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

33% 27% 61% 52%	%0 %0 %0	0% 45%	%0 %0	33% 36%	%0 %0 %0	%0 %8	%9 %9	%e %o	%0 %0	%0 %0	%0 %0	%0 %0	%0 %0	%0 %0	%0 %0	%0 %0 %0	%° %° %° %° %° %° %° %° %° %° %° %° %° %	%C %C	50% 73%	21% 3%		63%	%0 %0	%0 %0 %0	%0 %0	88% 20%	%0 %0	13%	%0 %0 %0	%0 %0	%0 %0	%0 %0	%0 %0 %0	%0 %0	%0 %0	%0	%0 %0 %0 %0 %0 %0 %0	%0 %0	%0 %0	75% 75%	93% 20%
33% 27% 3	%0 0	%0	%0	33%	%0	3%	%9	%0	%0	%0	%0	· %0	%0	%0	%0	%0	%0	%	42%	27%		%0	%0	%00	%0	%88	%0	0%	%0	%0	%0	%0 %0	%0	%0	%%	%0	%0 %0	%0	%0	%0	75%
New Fabric Filters	New LEWS New IWS		New Carbon Bed	New Quencher	New Afferburner	Fabric Filter DOM: small	Fabric Filter DOM, mod	DESP DOM, small	DESP DOM, mod	WESP DOM, small	WESP DOM, mod	IWS DOM, small	IWS DOM, mod	HEWS DOM, small	HEWS DOM, mod	LEWS DOM, small	Combination DOM	New DS	Feed Control	None	LWAKs	New Fabric Filters	New LEWS	New Carbon Injection	New Carbon Bed	New Quencher	New Afterburner	New Keneater	Fabric Filter DOM, mod	DESP DOM, small	DESP DOM, mod	WESP DOM, small	WESP DOM, mod	IWS DOM, Small	HEWS DOM, IIIDA	HEWS DOM mod	LEWS DOM, small	LEWS DOM, mod	Combination DOM	New DS	Feed Control

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES cont. (Before Consolidation)

ACI(70%	04 00 00 00 00 00 00 00 00 00 00 00 00 0	## 0000 p 0 1 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
F-ACI(50%) BTF	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	88 88 88 88 88 88 88 88 88 88 88 88 88	388 80 0 94 80 80 80 80 80 80 80 80 80 80 80 80 80 8
Rec(70%) BT	10% 20% 20% 20% 20% 20% 20% 20% 20% 20% 2	00 00 00 00 00 00 00 00 00 00 00 00 00	4,000000000000000000000000000000000000
Rec(50%) F	80000000000000000000000000000000000000	7 0 0 0 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0	20 20 20 20 20 20 20 20 20 20
loor(70%) F	\$	80 80 80 80 80 80 80 80 80 80 80 80 80 8	40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
loor(50%) F	20 20 20 20 20 20 20 20 20 20 20 20 20 2	500005 \$00005 \$000000000000000000000000	20 %00 %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
u.	Naw Earlor Filess New Facho Filess New LEWS New LEWS New Carbon Injection New Carbon Injection New Carbon Bed New Garbon Bed New Garbon Bed New Affarburer New Reheater New Affarburer New Spow, small NWS DOM, small LEWS DOM, small LEWS DOM, small NWS DOM, small	New Earlor Filters New Facht Filters New LEWS New WUSS New Carbon Injection New Carbon Bed New Quencher New Affecturer New DOM, small New DOM, small New DOM, small LEWS DOM, mod HEWS DOM, mod HEWS DOM, mod HEWS DOM, small LEWS DOM, small LEWS DOM, small LEWS DOM, small New DO	iovernment On-site Incinerators New Fabric Filters New ENVS New Wiss New Wiss New Wiss New Carbon Injection New Carbon Bed New Quencher New Afterburer New Carbon Bed New Book, small DESP DOM, small NESP DOM, small WESP DOM, small NESP DOM, small HEWS DOM, small HEWS DOM, small HEWS DOM, small HEWS DOM, small NEWS DOM, small

## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

BTF-ACI(70%	39 80 80 80 80 80 80 80 80 80 80	27% 0 0% 11% 0 0% 0 0% 0 0% 0 0% 0 0% 0 0%
BTF-ACI(50% BTF	39 00 00 00 00 00 00 00 00 00 00 00 00 00	272 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Rec(70%) BTI	30% 00% 00% 00% 00% 00% 00% 00% 00% 00%	00% 00% 00% 00% 00% 00% 00% 00% 00% 00%
Rec(50%) F	80 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00
Floor(70%)	35 35 36 36 36 36 36 36 36 36 36 36 36 36 36	0000044 000000000000000000000000000000
Floor(50%) F	35% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 10% 1	0%% 0%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
	New Fabric Filters New LEWS New LEWS New LEWS New Carbon Injection New Carbon Bed New Carbon Bed New Quencher New Afterburner New Spoom, mod WESP DOM, mod WESP DOM, mod WESP DOM, small WS DOM, small WS DOM, small WS DOM, small LEWS DOM, small New DS Feed Control	New Fabric Filters New LEWS New IWS New Orderbon Injection New Carbon Bed New Quencher New Afterburner New Reheater Fabric Filter DOM, small Fabric Filter DOM, mod DESP DOM, small NESP DOM, small WESP DOM, small WESP DOM, small WS DOM, small WS DOM, mod LEWS DOM, mod LEWS DOM, mod Combination DOM New DS Feed Control Total
	Cement Kilns New	LWAKS TRIBUTION: 27-Ju
		New Fabric New Ews New Ews New Ews New Ews New Carbon New Carbon New Garbon New Garbon New Garbon New Afferbunew Reheas Fabric Filter Fabric Filter Fabric Filter Fabric Filter Poly Ness

Government On-Site Incinerators New Fabric Filters New LEWS New WS New WAS New Carbon Injection New Carbon Bed New Afterbrumer New Afterbrumer New Afterbrumer New Reheater Fabric Filter DOM, small HEWS DOM, small	On-Site Incinerators New Fabric Filters New LEWS New IWS New WIS New Carbon Injection New Carbon Injection New Carbon Bed New Quencher New Afterburner New Reheater Fabric Filter DOM, small Fabric Filter DOM, small Fabric Filter DOM, small DESP DOM, small DESP DOM, small WESP DOM, small WESP DOM, small HEWS DOM, small HEWS DOM, mod LEWS DOM, mod Seed Control Total	Commercial Incinerators New Fabric Filters New Editor Filters New LEWS New WINS New Carbon Injection New Carbon Bed New Quencher New Affecburner New Affecburner New Affecburner New Reheater Fabric Filter DOM, small Fabric Filter DOM, small DESP DOM, small DESP DOM, small WESP DOM, small WESP DOM, small HEWS DOM, small HEWS DOM, small HEWS DOM, small LEWS DOM, small LEWS DOM, mod Cembination DOM New DS Feed Control Total
		FIO
1000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Floor(50%) FI 10% 10% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0
21% 0%% 0%% 0%% 0%% 0%% 0%% 0%% 0%% 0%% 0	54% 0%% 0%% 0%% 0%% 0%% 0%% 0%% 0%% 0%% 0	Floor(70%)  8% 0% 0% 0% 23% 23% 1% 1% 1% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
100%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%	36% 0% 0% 0% 27% 27% 27% 27% 0% 0% 0% 0% 0% 1% 0% 0% 1% 18%	Rec(50%)  8% 0% 16% 17% 17% 2% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%
1001 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	48 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Rec(70%) B 11% 0% 18% 19% 19% 19% 19% 20% 19% 20% 19% 24% 44% 100%
22% 0% 0% 0% 112% 0% 0% 0% 0% 0% 10% 10%	28% 0% 0% 28% 11% 12% 0% 0% 0% 0% 0% 0% 0%	BTF-ACI(50% BTF-ACI(70%  19% 20% 0% 0% 47% 50% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0
100 100 100 100 100 100 100 100	10 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3TF-ACI(70% 20% 50% 50% 60% 60% 60% 60% 60% 60% 60% 60% 60% 6

	Cement Kilns	t Kilns	LWAKs	١Ks	Commercial Incinerators	Incinerators		On-site Incinerators	inerators	
	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
	Term	Term	Term	Term	Term	Term	<20% below	>20% below	<20% below	<20% below >20% below
-		,			_		_		_	-
Floor (50%)	%0	3%	%0	%0	10%	10%	%0	31%	4%	40%
Floor (70%)	%0	3%	%0	%0	10%	10%	2%	78%	4%	40%
Rec (50%)	<b>%</b> 0	%9	%0	%0	10%	10%	%0	31%	4%	40%
Rec (70%)	%0	%9	%0	%0	. 10%	10%	2%	76%	4%	40%
BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	2%	33%	%8	46%
BTF-ACI (70%)	%0	%9	%0	25%	10%	10%	2%	31%	%8	46%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

100%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
Floor (50%)	\$24	\$3	\$7	\$27	\$7	\$69	-17%
Floor (70%)	\$16	\$3	\$6	\$23	\$7	\$55	-20%
Rec (50%)	\$26	\$4	\$7	\$29	\$7	\$72	-19%
Rec (70%)	\$19	\$4	\$6	\$25	\$7	\$60	-21%
BTF-ACI (50%)	\$34	\$5	\$10	\$49	\$27	\$125	-13%
BTF-ACI (70%)	\$27	\$5	\$9	\$44	\$26	\$111	-15%

Compliance costs after consolidation include only the costs for those systems that will continue to burn
waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
incinerators that decide to stop burning waste on-site.

Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket

<sup>&</sup>quot;Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### TOTAL COST OF WASTE DIVERTED FROM ON-SITE SYSTEMS THAT STOP BURNING (millions)

### Price pass through assumed:

100%

Option	On-site Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	\$0.19
BTF-ACI (70%)	\$2.27

On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS AFTER COMBUSTION SYSTEM CONSOLIDATIONS

### (millions)

(Includes Cost of Waste Diversion)

Price pass through assumed:

100%

Option	Total	
Floor (50%)	\$69	
Floor (70%)	\$55	
Rec (50%)	\$73	
Rec (70%)	\$61	
BTF-ACI (50%)	\$125	
BTF-ACI (70%)	\$113	

- 1. Compliance costs after consolidation include the costs for those systems that will continue to burn waste, as well as the shipping and disposal costs (after the assumed price increase) for on-site incinerators that decide to stop burning wastes on-site. Other types of combustion systems that stop burning wastes do not incur compliance costs and therefore are excluded.
- 2. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.
- 3. "Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

100%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
					·
Floor	(50%) \$728,353	\$312,665	\$298,694	\$303,967	\$281,064
Floor	(70%) \$495,465	\$265,102	\$268,924	\$265,247	\$261,146
Rec	(50%) \$773,990	\$394,025	\$303,414	\$319,358	\$281,064
Rec	(70%) \$578,418	\$360,261	\$277,499	\$282,653	\$261,146
BTF-ACI	(50%) \$1,043,019	\$508,367	\$426,560	\$557,891	\$1,061,809
BTF-ACI	(70%) \$818,226	\$464,470	\$403,222	\$514,958	\$1,042,619

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

100%

Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
\$31	\$37	\$17	\$36
\$23	\$31	\$14	\$32
\$33	\$49	\$17	\$37
\$26	\$45	<b>\$</b> 15	\$33
\$44	\$66	\$21	\$55
\$35	\$59	\$19	\$45
	\$31 \$23 \$33 \$26 \$44	Kilns       Kilns         \$31       \$37         \$23       \$31         \$33       \$49         \$26       \$45         \$44       \$66	Kilns         Kilns         Incinerators           \$31         \$37         \$17           \$23         \$31         \$14           \$33         \$49         \$17           \$26         \$45         \$15           \$44         \$66         \$21

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

100%

		Cement Kilns			LWAKs		Com	Commercial Incinerators	ators	Priva	Private On-site Incinerators	erators	
:	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%59	%0	35%	
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%89	%0	37%	
Rec (50%)	100%	%0	<b>%</b> 0	100%	%0	%0	%06	%0	10%	%59	%0	35%	
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%	
BTF-ACI (50%)	100%	%0 /	%0	100%	%0	%0	%06	%0	10%	63%	%0	37%	
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%29	%0	38%	

Notes:

Percent of systems currently not meeting short term baseline break-even quantity:
 Cement Kilns
 LWAKs
 Commercial Incinerators
 Private On-site Incinerators
 10%
 Private On-site Incinerators

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

100%

						•			-			
		Cement Kilns			LWAKs		Com	Commercial Incinerators	ators	Private	Private On-site Incinerators	rators
	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below
Floor (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	20%	%0	20%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	20%	%0	20%
Rec (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	%09	%0	%09
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	20%	%0	%09
BTF-ACI (50%)	100%	%0	%0	%88	%0	13%	%06	%0	10%	25%	%0	48%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%09	%0	%09

Notes:

Percent of systems currently not meeting long term baseline break-even quantity:
 Cement Kilns 0%
 LWAKs 0%
 Commercial Incinerators 10%
 Private On-site Incinerators 35%

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burning	ng Waste			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Floor (50%)	0	0	0	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	0	16
BTF-ACI (50%)	0	0	0	16
BTF-ACI (70%)	0	0	0	20

On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
0	0	3	42
ng Waste	•		
1	0	Ò	13
0	0	0	13
1	0	0	13
0	0	0	13
0	0	0	10
0	0	0	13
	Milns  0  Ing Waste  1  0  1  0  1	Kilns         LWAKs           0         0           ng Waste         1         0           0         0         0           1         0         0           0         0         0           0         0         0           0         0         0	Kilns         LWAKs         Incinerators           0         0         3           ng Waste         1         0         0           0         0         0         0           1         0         0         0           0         0         0         0           0         0         0         0           0         0         0         0

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
acilities currently burning elow break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	15%
BTF-ACI (70%)	0%	0%	0%	18%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
acilities currently burning below break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	12%
Floor (70%)	0%	0%	0%	12%
Rec (50%)	6%	0%	0%	12%
Rec (70%)	0%	0%	0%	12%
BTF-ACI (50%)	0%	0%	0%	9%
BTF-ACI (70%)	0%	0%	0%	12%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (70%)	0	0	3,170	51,040	54,210	2%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- 4. Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

### Price pass through assumed:

100%

		Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
•	Baseline	0	. 0	3,170	97,760	100,930	3%
	Floor (50%)	11,530	0	3,170	111,330	126,030	4%
	Floor (70%)	0	0	3,170	111,330	114,500	3%
	Rec (50%)	11,530	0	3,170	111,330	126,030	4%
	Rec (70%)	0	0	3,170	111,330	114,500	3%
	BTF-ACI (50%)	0	0	3,170	106,270	109,440	3%
	BTF-ACI (70%)	0	0	3,170	111,330	114,500	3%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

100%

MACT Option	į.	nent Ins	LW	AKs		nercial erators	1	-site erators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	0	0	131	226	131	226
Floor (70%)	0	0	0	0	   0 	0	131 	231	   131 	231
Rec (50%)	0	0	0	. 0	l 0 I	0	l 131 I	226	 131 	226
Rec (70%)	0	0	l 0	0	l 0	0	l 131 I	231	l 131	231
BTF-ACI (50%)	0	0	0	0	l 0	0	l 131 I	231	l 131	231
BTF-ACI (70%)	0	0	l 0	0	l 0	0	l 139 I	239	   139 	239
					 		l .		1	1
			1		1		] I			
		·								

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
try					
77	5	10	31 ~	5	129
25	6	14	60	29	133
50	4	9	85	8	157
1	0	1	4	1	7
153	16	34	180	43	426
	77 25 50 1	Kilns         LWAKs           Atry         77         5           25         6           50         4           1         0	Kilns         LWAKs         Incinerators           1try         77         5         10           25         6         14           50         4         9           1         0         1	Kilns         LWAKs         Incinerators         Incinerators           1try         77         5         10         31           25         6         14         60           50         4         9         85           1         0         1         4	Cement Kilns         LWAKs         Commercial Incinerators         On-site Incinerators         On-site Incinerators           77         5         10         31         5           25         6         14         60         29           50         4         9         85         8           1         0         1         4         1

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(70%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	5	8	28	5	96
CEMs/Monitoring Equipment	25	6	14	57	29	131
Labor Within Combustion Sector						
O&M	35	4	8	76	7	130
Permitting	1	0	1	4	1	7
Total	113	15	30	164	42	364

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	77	7	12	38	5	139
CEMs/Monitoring Equipment	25	6	14	57	29	131
Labor Within Combustion Sector						
O&M	50	5	13	100	8	177
Permitting	1	0	· 1	4	1	7
Total	153	19	40	199	43	454

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
try					
51	6	10	34	5	106
25	. 6	14	55	29	128
	,				
35	5	12	90	7	150
-1	0	1	3	1	7
113	17	37	182	42	391
	Kilns  try  51  25  35	Kilns         LWAKs           try         51         6           25         6           35         5           1         0	Kilns         LWAKs         Incinerators           try         51         6         10           25         6         14           35         5         12           1         0         1	Kilns         LWAKs         Incinerators         Incinerators           try         51         6         10         34           25         6         14         55           35         5         12         90           1         0         1         3	Cement Kilns         LWAKs         Commercial Incinerators         On-site Incinerators         On-site Incinerators           51         6         10         34         5           25         6         14         55         29           35         5         12         90         7           1         0         1         3         1

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	99	10	22	92	13	236
CEMs/Monitoring Equipment	25	6	15	64	29	139
Labor Within Combustion Sector						
O&M	84	17	35	205	24	366
Permitting	1	0	1	· 4	1	8
Total	209	33	73	366	67	748

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(70%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	78	9	20	77	13	197
CEMs/Monitoring Equipment	25	6	14	62	29	137
Labor Within Combustion Sector						
O&M	67	14	35	176	22	314
Permitting	1.	0	1	4	1	8
Total	171	29	71	319	65	655

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance c	osts passed thr	ough		
Floor (50%)	\$22	\$22	\$20	\$20
Floor (70%)	\$15	\$15	\$15	\$15
Rec (50%)	\$22	\$22	\$20	\$20
Rec (70%)	\$16	\$16	\$16	\$16
BTF-ACI (50%)	\$47	\$47	\$37	\$40
BTF-ACI (70%)	\$35	\$35	\$29	\$31

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

PRELIMINARY ECONOMIC IMPACT RESULTS

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

		٥	Cement Kilns	St.				LWAKs				Commer	Commercial Incinerators	rators			On-site	On-site Incinerators	ors			Govern	Government On-sites	tes	
	<10%	10-20%	21-50%	<10% 10-20% 21-50% 51-75% >75%	>75%		10-20%	<10% 10-20% 21-50% 51-75%	51-75%	>75%	<10%	10-20% 21-50%		51-75%	- 75%	<10% 1	10-20% 2	21-50% 5	51-75%	>75%	<10%	10-20% 2	10-20% 21-50% 51-75%		>75%
															_										
Floor (50%)	15%	%6	39%	24%	12%	%0	25%	20%	25%	%0	%08	10%	10%	%0	%0	33%	21%	37%	%9	4%	24%	14%	43%	10%	10%
Floor (70%)	30%	%6	36%	21%	3%	13%	13%	20%	25%	%0	85%	2%	10%	%0	%0	38%	25%	27%	%9	4%	33%	14%	33%	2%	14%
Rec (50%)	3%	21%	36%	21%	18%	%0	%0	75%	25%	%0	%08	10%	10%	%0	%0	27%	19%	48%	%0	%9	24%	14%	43%	10%	10%
Rec (70%)	27%	12%	30%	24%	%9	%0	%0	75%	25%	%0	%98	40%	2%	%0	%0	33%	73%	38%	5%	4%	33%	14%	33%	2%	14%
BTF-ACI (50%)	3%	%9	30%	30%	30%	%0	%0	38%	38%	25%	%09	30%	10%	%0	%0	13%	72%	46%	%8	%8	19%	10%	33%	24%	14%
BTF-ACI (70%)	21%	%9	15%	36%	21%	%0	%0	38%	20%	13%	%02	72%	2%	%0	%0	15%	31%	38%	10%	%9	24%	14%	24%	19%	19%

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs?
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

		Cer	Cement Kilns			_	-	LWAKs				Comme	Commercial Incinerators	ators			On	On-site Incinerators	tors	
	<10%	<10% 10-20% 21-50% 51-75% >75%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%
Floor (50%)	39%	30%	30%	%0	%0	13%	20%	38%	%0	%0	%06	%0	%0	%0	10%	48%	13%	10%	15%	13%
Floor (70%)	61%	18%	21%	%0	%0	25%	%09	25%	%0	%0	%06	%0	%0	2%	2%	25%	10%	10%	19%	10%
Rec (50%)	39%	30%	30%	%0	%0	%0	25%	75%	%0	%0	%06	%0	%0	2%	%9	48%	13%	12%	12%	15%
Rec (70%)	25%	27%	21%	%0	%0	%0	25%	75%	%0	%0	%06	%0	%0	2%	2%	52%	10%	12%	15%	12%
BTF-ACI (50%)	24%	27%	45%	3%	%0	%0	13%	63%	25%	%0	%06	%0	%0	%9	%9	37%	10%	19%	23%	12%
BTF-ACI (70%)	36%	24%	36%	3%	%0	%0	13%	75%	13%	%0	%06	%0	%0	2%	2%	37%	21%	12%	19%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy savings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

Options

100%

On-site Incinerators

Operating Profit Margin

\$ Change % Margin after the Rule 21% 21% 57% 21% Commercial Incinerators

Derating Profit Margin

% Change -5% -5% -5% -5% \$ Change \$2 \$5 \$ \$ % Margin after the Rule 46% 48% 39% 39% LWA Kiins 40% -28% -56% 40% (\$15) (\$16) (\$27) (\$28) % Margin after the Rule 74% 72% 74% 72% Cement Kilns Operating Profit Margin \$ Change % Change -11% -11% % 8-%6ç 8 20 S Floor (50%) Floor (70%) Rec (50%) Rec (70%)

% Margin after the Rule

26% 61% 26% %09 26% %09

(\$15) (\$17) (\$15) (\$17)

-1% %8-%/-%6<u>-</u> %8

> (\$11) (\$7)

> > 28%

28%

%0 -1%

\$16 \$26

37% 38%

41% 43%

(\$19) (\$25)

63% %19

-22%

\$ \$

BTF-ACI (50%) BTF-ACI (70%)

-17%

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost for the most efficient combustion scdor. As this is a static model, we have capped the price pass-through using the combustion systems expected to remain burning hazardous waste even though the endiginal pass-through value included some systems expected to stop burning. This is a better approximation of the impleus combustors have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste

2. Operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
3. Percentage Operating Profit Margin = average operating profits per ton / (weighted average price per ton + assumed price increase due to compliance costs passed through). Percentage profit margin after the rule is

calculated using the same formula with post-rule operating profits and prices.

4. Change in operating profits per ton = Post-rule operating profits aper ton - baseline operating profits per ton - baseline operating profits per ton - baseline operating profits margin because the consultance of the calculated by dividing the percentage profit margin after ton solidation can be calculated by dividing the percentage profit margin after the rule by one plus the percentage change in the operating profit margin. For consistency, baseline values have been calculated using the median compliance cost per ton for facilities that remain in operation after the rule for each MACT option.

### LIST OF EXHIBITS

### (100% Price Pass-Through; PM CEM Option 2: Not Required for Any Facilities)

Total Annual Compliance Costs (Assuming no Market Exit)

Average Total Annual Compliance Costs per Combustion System (Assuming no Market Exit)

Average Total Annual Compliance Costs Per Ton (Before Consolidation)

Average Total Annual Baseline Cost of Burning Waste and Compliance Costs per Ton of Hazardous Waste Burned (Before Consolidation)

Baseline Operating Profits per Ton of Hazardous Waste Burned and as Percentage of Baseline Weighted Average Prices per Ton

Percent of Systems Requiring Control Measures (Before Consolidation)

Percent of New Compliance Costs by Control Measure (Before Consolidation)

Percentage of Combustion Systems Burning Below Static BEQs

Total Annual Pre-Tax Compliance Costs (After Combustion System Consolidations)

Average Total Annual Pre-Tax Compliance Cost per Combustion System After Consolidation

Average Total Annual Pre-Tax Compliance Costs per Ton (Short Term - After Consolidation)

Percentage of Combustion Systems Meeting Short Term BEQ After Consolidation

Percentage of Combustion Systems Meeting Long Term BEQ After Consolidation

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Short Term

Number of Combustion Facilities Likely to Stop Burning Hazardous Waste in the Long Term

Percentage of Facilities Likely to Stop Burning Waste in the Short Term

Percentage of Facilities Likely to Stop Burning Waste in the Long Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Short Term

Quantity of Hazardous Waste that could be Diverted from Combustion Facilities in the Long Term

Estimated Short-Term Employment Losses at Combustion Systems

Estimated Long-Term Employment Losses at Combustion Systems

Estimated Employment Increases Associated with Compliance Requirements After System Consolidation

- -- Floor (50%)
- -- Floor (70%)
- -- Rec (50%)
- -- Rec (70%)
- -- BTF-ACI (50%)
- -- BTF-ACI (70%)

Weighted Average Combustion Price per Ton and Increase in Prices Due to Assumed Price Pass-Through

New Compliance Costs as a Percentage of Baseline Costs of Hazardous Waste Burning

New Compliance Costs as a Percentage of Hazardous Waste Burning Revenues

Change in Average Operating Profits Per Ton of Hazardous Waste Burned

### TOTAL ANNUAL COMPLIANCE COSTS (millions) (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites	Total
Floor (50%)	\$22	\$3	\$7	\$33	\$4	\$69
Floor (70%)	\$15	\$2	\$6	\$28	\$4	\$55
Rec (50%)	\$24	\$3	\$7	\$37	\$4	\$75
Rec (70%)	\$17	\$3	\$6	\$32	\$4	\$63
BTF-ACI (50%)	\$33	\$5	\$10	\$59	\$24	\$130
BTF-ACI (70%)	\$25	\$4	\$9	<b>\$</b> 54	\$24	\$116

<sup>1.</sup> Estimates assume that all facilities comply. Facilities non-viable in the baseline are included.

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$677,373	\$260,252	\$267,273	\$237,552	\$179,565
Floor (70%)	\$444,485	\$212,689	\$238,749	\$203,763	\$159,648
Rec (50%)	\$723,010	\$341,613	\$267,634	\$265,811	\$179,565
Rec (70%)	\$527,438	\$307,849	\$242,210	\$234,073	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$379,459	\$429,193	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$356,234	\$392,281	\$941,121

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER COMBUSTION SYSTEM (Assuming no Market Exit)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Estimated Number of Combustion Systems	33	10	26	138	25
Floor (50%)	\$677,373	\$260,252	\$267,273	\$237,552	\$179,565
Floor (70%)	\$444,485	\$212,689	\$238,749	\$203,763	\$159,648
Rec (50%)	\$723,010	\$341,613	\$267,634	\$265,811	\$179,565
Rec (70%)	\$527,438	\$307,849	\$242,210	\$234,073	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$379,459	\$429,193	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$356,234	\$392,281	\$941,121

### AVERAGE TOTAL ANNUAL COMPLIANCE COSTS PER TON (Before Consolidation)

 Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	-
Floor (50%)	\$29	\$30	\$116	\$17,853	
Floor (70%)	\$21	\$24	\$111	\$17,190	
Rec (50%)	\$31	\$42	\$129	\$17,968	
Rec (70%)	\$23	\$38	\$121	\$17,318	
BTF-ACI (50%)	\$41	\$60	\$135	\$15,929	
BTF-ACI (70%)	\$33	\$53	\$127	\$15,828	

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.

### AVERAGE TOTAL ANNUAL BASELINE COST OF BURNING WASTE AND COMPLIANCE COSTS PER TON OF HAZARDOUS WASTE BURNED (Before Consolidation)

Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
\$74	\$114	\$658	\$36,325
5) \$29	\$30	\$116	\$17,853
5) \$21	\$24	\$111	\$17,190
5) \$31	\$42	\$129	\$17,968
5) \$23	\$38	\$121	\$17,318
5) \$41	\$60	\$135	\$15,929
5) \$33	\$53	\$127	\$15,828
	\$74 \$74 \$6) \$29 \$6) \$21 \$6) \$31 \$6) \$23 \$6) \$41	Kilns     Kilns       \$74     \$114       5)     \$29       5)     \$21       5)     \$31       5)     \$31       5)     \$23       5)     \$42       6)     \$41       60	Kilns         Kilns         Incinerators           \$74         \$114         \$658           \$0         \$29         \$30         \$116           \$0         \$21         \$24         \$111           \$0         \$31         \$42         \$129           \$0         \$23         \$38         \$121           \$0         \$41         \$60         \$135

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- 2. On-site incinerator baseline and compliance costs per ton are high due to the large number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger quantities of hazardous waste compliance costs per ton would actually be lower. If facilities are burning large volumes of non hazardous waste in addition to the hazardous waste, baseline costs per ton would be lower.

### BASELINE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED

(Number of Combustion systems Falling in Range)

	<\$0	\$0 - \$50	\$51 - \$100	\$101 - \$150	>\$150
Cement Kilns	0	0	8	15	10
LWA Kilns	0	0	8	3	0
Commercial Incinerators	3	1	1	1	20
On-site Incinerators	48	13	.11	11	56

### BASELINE OPERATING PROFITS AS A PERCENTAGE OF BASELINE WEIGHTED AVERAGE PRICES PER TON (Number of Combustion systems Falling in Range)

	<0%	0% - 10%	11% - 25%	26% - 50%	>50%
Cement Kilns	0	0	0	2	31
LWA Kilns	0	0	0	0	10
Commercial Incinerators	3	0	3	8	13
On-site Incinerators	48	8	24	19	40

- Baseline Operating Profits = (weighted average price per ton + weighted average energy savings per ton) - total annual baseline costs per ton. Total annual baseline costs include fixed annual capital costs, fixed annual operating and maintenance costs, and annual variable costs.
- 2. Baseline operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
- 3. Number of systems with average operating profits less than \$0 (or <0%) includes those burning very little or no waste.
- 4. Baseline operating profits are calculated at the system level. Consolidating burning into fewer systems may reduce facility closures, explaining why the system estimates presented in this exhibit appear higher than the facility closure presented in later exhibits.
- 5. Includes combustion systems not currently burning waste in the cement kiln, LWAK, and commercial incinerator sectors; or burning less than 50 tons per year in the on-site incinerator sector.

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES (Before Consolidation)

| 52%                | %0                  | 36%   | %<br>%<br>%   | 30%  | %0  | %0  | %0  | %9  | %0   | %0   | %0  | %0   
   
   
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  | IWS DOM, small  | IWS DOM, mod   | HEWS DOM, small  | HEWS DOM, mod  
   | LEWS DOM, small  | LEWS DOM, mod  | Combination DOM   
   
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  | Feed Control   | None  |  |                                       | New Fabric Filters   
   | New LEWS   | New IWS   | New Carbon Injection  | New Carbon Bed   
  | New Quencher  | New Atterburner   | New Nerleage<br>Eabric Eilter DOM small  
  | Fabric Filter DOM, mod   | DESP DOM. small   | DESP DOM, mod   
   | WESP DOM, small   | WESP DOM, mod   | IWS DOM, small   | IWS DOM, mod   | HEWS DOM, small   | HEWS DOM, mod   | LEWS DOM: mod  | Combination DOM                                | New DS   | Feed Control   | None   | MO 10.01.701 00   |
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      New Carbon Injection         0%         0%         0%         0%         0%           New Afferburner         0%         0%         0%         0%         0%           New Afferburner         0%         0%         0%         0%         0%           New Afferburner         0%         0%         0%         0%         0%           Pabric Filler DOM, small         0%         0%         0%         0%         0%           DESP DOM, mod         0%         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0%</td><td>New Fabric Filters 33% 27% 33% 27% 61% New Fabric Filters 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%</td><td>New Fabric Filters 33% 27% 33% 27% 61% New Fabric Filters 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%</td><td>New Fabric Filters 33% 27% 33% 27% 61% New Early Filters 61% 61% New Carbon Injection 67% 67% 67% 67% 67% 67% 67% 67% 67% 67%</td><td>New Fabric Filters 33% 27% 33% 27% 18% Now LEWS OW 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%</td><td>New Fabric Filters 33% 27% 33% 27% 61% New LEWS 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%</td><td>New Fabric Filters 33% 27% 33% 27% 18 Nov LEWS</td><td>New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           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LEWS         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%      
  0%         0%         0%         0%</td> <td>New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Affactor         0%         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%</td> <td>New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Alterburser         0%         0%         0%         0%         0%         0%           New Albertier         0%         0%         0%         0%         0%         0%           New Albertier         0%         0%         0%         0%         0%         0%         0%           New Pathic Filter DOM, small         0%</td> <td>New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Reheard         0%<!--</td--></td> | New Fabric Filters 33% 27% 33% 27% 61% New EMS New Carbon Injection 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%         0%           New Afterburner         0%         0%         0%         0%         0%         0%         0%           New Afterburner         0%         0%         0%         0%         0%         0%         0%           New Reheater         0% | New Eabric Filters         33%         27%         33%         27%         61%           New LEVS         0%         0%         0%         0%         0%           New WINS         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%           New Carbon Bed         0%         0%         0%         0%         0%           New Affeburner         0%         0%         0%         0%         0%         0%           Pabric Filler DOM, mod         0% | New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%           New WISS         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%           New Carbon Bed         0%         0%         0%         0%         0%           New Actabor Injection         0%         0%         0%         0%         0%           New Actabor Injection         0% | New Fabric Filters         33%         27%         33%         27%         61%           New LevyS         New LevyS         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%           New Carbon Injection         0%         0%         0%         0%         0%           New Afferburner         0%         0%         0%         0%         0%           New Afferburner         0%         0%         0%         0%         0%           New Afferburner         0%         0%         0%         0%         0%           Pabric Filler DOM, small         0%         0%         0%         0%         0%           DESP DOM, mod         0%         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0%         0%         0%           WESP DOM, small         0%         0%         0%         0% | New Fabric Filters 33% 27% 33% 27% 61% New Fabric Filters 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | New Fabric Filters 33% 27% 33% 27% 61% New Fabric Filters 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | New Fabric Filters 33% 27% 33% 27% 61% New Early Filters 61% 61% New Carbon Injection 67% 67% 67% 67% 67% 67% 67% 67% 67% 67% | New Fabric Filters 33% 27% 33% 27% 18% Now LEWS OW 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | New Fabric Filters 33% 27% 33% 27% 61% New LEWS 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% | New Fabric Filters 33% 27% 33% 27% 18 Nov LEWS | New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0%         0%         0%         0%         0%         0%           New Carbon leded         0% | New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Affactor         0%         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%         0%   
     0%         0% | New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Carbon leigetion         0%         0%         0%         0%         0%         0%           New Alterburser         0%         0%         0%         0%         0%         0%           New Albertier         0%         0%         0%         0%         0%         0%           New Albertier         0%         0%         0%         0%         0%         0%         0%           New Pathic Filter DOM, small         0% | New Fabric Filters         33%         27%         33%         27%         61%           New LEWS         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Carbon legiction         0%         0%         0%         0%         0%         0%           New Reheard         0% </td |

## PERCENT OF SYSTEMS REQUIRING CONTROL MEASURES cont. (Before Consolidation)

F-ACI(70%	64 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	80000000000000000000000000000000000000	8.00%
F-ACI(50%) B7	\$	80 0 1	88 8,00 8,00 8,00 8,00 8,00 8,00 8,00 8
Rec(70%) BT	15% 4 10% 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	42 40 40 40 40 40 40 40 40 40 40
Rec(50%)	6.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		\$0000000000000000000000000000000000000
Floor(70%)	2000 000 000 000 000 000 000 000 000 00	80 80 80 80 80 80 80 80 80 80 80 80 80 8	24,2 20,0
Floor(50%)	### ##################################	60 0 0 0 0 t 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20 %0 %0 %0 %0 %0 %0 %0 %0 %0 %0 %0 %0 %0
	Commercial Incinerators  New Tebbic Filters  New LEWS  New WS  New WS  New Observation  New Garbon Injection  New Coldw, small  Ness DOM, small  LEWS DOM, small  LEWS DOM, small  Ness DOM, small	On-Site Incinerators  New Tabhic Filters  New LEWS  New WIS  New WIS  New Carbon Bed  New Aletatumer  New Affettumer  New Reheaster  Pabric Filter DOM, small  Fabric Filter DOM, mod  DESP DOM, mod  DESP DOM, mod  WESP DOM, mod  WESP DOM, small  WESP DOM, mod  HEWS DOM, small  WESP DOM, mod  LEWS DOM, mod  New DOM, mod  Combination DOM  New DS  Feed Control	Government On-site Incinerators New LEWS New Habric Filters New Carbon Injection New Carbon Bed New Carbon Small Fabric Filter DOM, small New Sp DOM, mod DESP DOM, small New DOM, mod HEWS DOM, small New DOM, small New DOM, small LEWS DOM, small New DS Feed Control None

## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE (Before Consolidation)

Cement Kins         35%         35%         33%           New Fabric Filters         35%         35%         33%           New LEWS         0%         0%         0%           New Carbon Bed         0%         0%         0%           New Carbon Bed         0%         0%         0%           New Afterburner         0%         0%         0%           New Afterburner         0%         0%         0%           New Afterburner         0%         0%         0%           Pabric Filter DOM, small         0%         0%         0%           DESP DOM, small         0%         0%         0%           NESP DOM, small         0%         0%         0%           New SDOM, small         0%         0%         0%           New DOM, small         0%         0%         0%           New
New LEWS         0%           New WEST         0%           New Carbon Injection         0%           New Carbon Injection         0%           New Carbon Bed         0%           New Afterburner         0%           New Afterburner         0%           New Reheater         0%           Pabric Filter DOM, small         0%           DESP DOM, small         0%           WESP DOM, mod         0%           LEWS DOM, small         0%           NEW DOM, small         0%           NEW DOM, small         0%           New DS         0%           Feed Control         0%           New DS         0%           New DS         0%           New WS         0%           New WS         0%           New WS         0%           New Garbon Injection         0%           New Wash Quencher         0%           New Wash Quencher         0%           New Wash Quencher         0%
New IWS         0%         0%           New Carbon Injection         0%         0%           New Carbon Bed         24%         32%           New Alterburner         0%         0%           New Alterburner         0%         0%           New Reheater         0%         0%           Fabric Filter DOM, small         0%         0%           DESP DOM, small         0%         0%           WESP DOM, small         0%         0%           HEWS DOM, small         0%         0%           HEWS DOM, small         0%         0%           HEWS DOM, small         0%         0%           New DS         0%         0%           Feed Control         0%         0%           New DS         0%         0%           New LEWS         0% <t< td=""></t<>
New Carbon injector         0%         0%           New Carbon injector         0%         0%           New Carbon Bed         0%         0%           New Reheater         0%         0%           New Reheater         0%         0%           Pabric Filter DOM, small         0%         0%           DESP DOM, small         0%         0%           DESP DOM, small         0%         0%           WESP DOM, mod         0%         0%           WESD DOM, small         0%         0%           HEWS DOM, small         0%         0%           LEWS DOM, mod         0%         0%           Combination DOM         0%         0%           New LEWS         0%         0%           New LEWS         0%         0%           New Garbon Injection         0%         0%           New Garbon Bed         0%         0%           New Garbon Bed         0%         0%           New Garbon Bed         0%         0%           New G
New Quencher         24%         32%           New Afterburner         0%         0%           New Reheater         0%         0%           Fabric Filter DOM, small         0%         0%           DESP DOM, small         0%         0%           DESP DOM, small         0%         0%           WESP DOM, mod         0%         0%           WES DOM, small         0%         0%           HEWS DOM, mod         0%         0%           LEWS DOM, mod         0%         0%           LEWS DOM, mod         0%         0%           LEWS DOM, mod         0%         0%           New DoM, mod         0%         0%           New Earb         0%         0%           New Garbon Injection         0%         0%           New Garbon Injection         0%         0%           New Garbon Bed         0%         0%           New Garbon Bed         0%         0%           New Garbon Bed         0%         0%           New Garb
New Afterburner         0%         0%           New Reheater         0%         0%           Fabric Filter DOM, mod         0%         0%           DESP DOM, small         0%         0%           DESP DOM, small         0%         0%           WESP DOM, mod         0%         0%           WESP DOM, small         0%         0%           IWS DOM, mod         0%         0%           HEWS DOM, small         0%         0%           HEWS DOM, small         0%         0%           LEWS DOM, small         0%         0%           LEWS DOM, small         0%         0%           New DS         0%         0%           New Ews DoM, mod         0%         0%           New Carbon Injection         0%         0%           New Carbon Bed         0%         0%           New Carbon Bed         0%         0%           New Carbon Bed         0%         0%           New Carbon Injection         0%         0%           New Carbon Injection         0%         0%           New Garbon Bed         0%         0%           New Garbon Mod         0%         0% <t< td=""></t<>
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Pabric Filter Down, small
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## PERCENT OF NEW COMPLIANCE COSTS BY CONTROL MEASURE, cont. (Before Consolidation)

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# PERCENTAGE OF COMBUSTION SYSTEMS BURNING BELOW STATIC BEQS

		Cement Kilns	Kilns	LWAKs	ıKs	Commercial Incinerators	Incinerators		On-site Incinerators	inerators	
	I	Short	Long	Short	Long	Short	Long	Short	Short Term	Long	Long Term
		Term	Term	Term	Term	Term	Term	<20% below	>20% below	<20% below	<20% below >20% below
					-						
,										-	•
	Floor (50%)	%0	3%	%0	%0	10%	10%	10%	21%	4%	38%
	Floor (70%)	%0	3%	%0	%0	10%	10%	10%	21%	2%	38%
	Rec (50%)	%0	%9	%0	%0	10%	10%	10%	21%	4%	38%
	Rec (70%)	%0	<b>%9</b>	%0	%0	10%	10%	10%	21%	2%	38%
[8	BTF-ACI (50%)	%0	%9	13%	25%	10%	10%	10%	23%	12%	42%
В	BTF-ACI (70%)	%0	%9	%0	13%	10%	10%	12%	21%	12%	42%

### TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS (millions) AFTER COMBUSTION SYSTEM CONSOLIDATIONS

Price pass through assumed:

100%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-Sites	Total	% Difference from Compliance Costs with No System Consolidation
Floor (50%)	\$22	\$3	\$6	\$22	\$4	\$58	-17%
Floor (70%)	\$15	\$2	\$5	\$19	\$4	\$45	-19%
Rec (50%)	\$24	\$3	\$6	\$24	\$4	\$61	-19%
Rec (70%)	\$17	\$3	\$5	\$20	\$4	\$50	-21%
BTF-ACI (50%)	\$33	\$5	\$9	\$44	\$24	\$114	-12%
BTF-ACI (70%)	\$25	\$4	\$8	\$41	\$24	\$102	-12%

Compliance costs after consolidation include only the costs for those systems that will continue to burn
waste, and do not include shipping and disposal costs (after the assumed price increase) for on-site
incinerators that decide to stop burning waste on-site.

Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket

<sup>&</sup>quot;Consolidation" allows for non-viable combustion systems to consolidate waste flows with other systems at the same facility, or to exit the waste burning market. As a result, the number of combustion systems incurring compliance costs is reduced.

Price pass through assumed:

100%

	On-site
Option	Incinerators
Floor (50%)	\$0.19
Floor (70%)	\$0.19
Rec (50%)	\$0.19
Rec (70%)	\$0.19
BTF-ACI (50%)	\$0.19
BTF-ACI (70%)	-\$0.73

<sup>1.</sup> On-site incinerator estimates are for private facilities only. We assume that government facilities continue burning post-MACT and therefore no waste will be diverted from these facilities.

<sup>2.</sup> Waste diversion costs include both transportation and disposal costs (after the assumed price increase).

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER COMBUSTION SYSTEM AFTER CONSOLIDATION

Price pass through assumed:

100%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators	Government On-sites
Floor (50%)	\$677,373	\$260,252	\$243,257	\$248,774	\$179,565
Floor (70%)	\$444,485	\$212,689	\$213,488	\$208,262	\$159,648
Rec (50%)	\$723,010	\$341,613	\$247,977	\$264,165	\$179,565
Rec (70%)	\$527,438	\$307,849	\$222,062	\$225,156	\$159,648
BTF-ACI (50%)	\$992,039	\$455,955	\$371,123	\$491,946	\$960,310
BTF-ACI (70%)	\$767,246	\$412,058	\$347,785	\$451,316	\$941,121

<sup>1.</sup> Average annual pre-tax compliance costs per system are based on the number of combustion systems that remain open after consolidation. The number of combustion systems that remain open in the sectors may vary by option.

<sup>2.</sup> Total annual pre-tax compliance costs for the on-site incinerator sector do not include the cost of diverting waste to alternative management for those systems that stop burning hazardous waste.

### AVERAGE TOTAL ANNUAL PRE-TAX COMPLIANCE COSTS PER TON (Short Term - After Consolidation)

Price pass through assumed:

100%

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
El (500()	000	000	<b>.</b>	***
Floor (50%) Floor (70%)	\$29 \$21	\$30 \$24	\$14 \$11	\$28 \$25
Rec (50%)	\$31	\$42	\$14	\$29
Rec (70%)	\$23	\$38	\$12	\$26
BTF-ACI (50%)	\$41	\$60	\$18	\$50
BTF-ACI (70%)	\$33	\$53	\$16	\$44

- 1. Average compliance costs per ton exclude systems currently not burning hazardous waste.
- Average on-site incinerator compliance costs include direct costs of meeting the new emission levels. Indirect costs to facilities that stop burning wastes and must ship them off-site for management are not included.
- 3. Only private systems, and not governmental systems, are reflected in the average compliance costs per ton for on-site incinerators.
- 4. On-site incinerator compliance costs per ton are high due to a number of on-site incinerators that reported low tons burned data to BRS in 1995. If facilities are burning larger volumes of hazardous waste, compliance costs per ton for on-site incinerators will be lower.
- 5. Because compliance costs are tax-deductible, the portion of pre-tax costs borne by the firm would be between 70 and 80 percent of the values shown above, depending on the specific firm's marginal tax bracket.

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING SHORT TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

100%

		Cement Kilns			LWAKs		Con	Commercial Incinerators	rators	Privat	Private On-site Incinerators	erators
	Above	<20% below	<20% below >20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below
		Constitution of the Consti									1	
Floor (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%59	%0	35%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%59	%0	35%
Rec (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%59	%0	35%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%59	%0	35%
BTF-ACI (50%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	65%	%0	35%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	%59	%0	35%

Notes:

Percent of systems currently not meeting short term baseline break-even quantity:
 Cement Kilns
 UWAKs
 Commercial Incinerators
 Private On-site Incinerators
 15%

# PERCENTAGE OF COMBUSTION SYSTEMS MEETING LONG TERM BEQ AFTER CONSOLIDATION (Percentage of combustion systems; includes systems currently burning below their break-even quantity)

Price pass through assumed:

100%

_	_	Comont Kilns	_		I WAKe		Con	Commercial Incinerators	afors	Private	Private On-eite Incineratore	pratore
	Above	<20% below >20% below	>20% below	Above	<20% below >20% below	>20% below	Above	<20% below	<20% below >20% below	Above	<20% below	<20% below >20% below
		17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					41					
Floor (50%)	%26	· %0	3%	100%	%0	%0	%06	%0	10%	25%	%0	48%
Floor (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	20%	%0	20%
Rec (50%)	%26	%0	3%	100%	%0	%0	%06	%0	10%	52%	%0	48%
Rec (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	20%	%0	20%
BTF-ACI (50%)	100%	%0	%0	100%	%0	%0	%06	, %0	10%	52%	%0	48%
BTF-ACI (70%)	100%	%0	%0	100%	%0	%0	%06	%0	10%	52%	%0	48%

Notes:

Percent of systems currently not meeting long term baseline break-even quantity:
 Cement Kilns 0%
 LWAKs 0%
 Commercial Incinerators 10%
 Private On-site Incinerators 35%

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	26
Incremental Facilities Likely to Stop Burnir	ng Waste			
Floor (50%)	0	0	0	16
Floor (70%)	0	0	0	16
Rec (50%)	0	0	0	16
Rec (70%)	0	0	0	16
BTF-ACI (50%)	0	0	0	16
BTF-ACI (70%)	0	0	0	16

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### NUMBER OF COMBUSTION FACILITIES LIKELY TO STOP BURNING HAZARDOUS WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0	0	3	42
Incremental Facilities Likely to Stop Burnin	g Waste		-	
Floor (50%)	1	0	0	10
Floor (70%)	0	0	0	13
Rec (50%)	1	0	0	10
Rec (70%)	. 0	0	0	13
BTF-ACI (50%)	0	0	0	10
BTF-ACI (70%)	0	0	0	10

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE SHORT TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
Facilities currently burning below break-even quantity in baseline	0%	0%	13%	24%
Floor (50%)	0%	0%	0%	15%
Floor (70%)	0%	0%	0%	15%
Rec (50%)	0%	0%	0%	15%
Rec (70%)	0%	0%	0%	15%
BTF-ACI (50%)	0%	0%	0%	15%
BTF-ACI (70%)	0%	0%	0%	15%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of the Hazardous Waste Combustion MACT.

### PERCENTAGE OF FACILITIES LIKELY TO STOP BURNING WASTE IN THE LONG TERM

(net of facilities currently burning below their break-even quantity)

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators
-acilities currently burning pelow break-even quantity in baseline	0%	0%	13%	38%
Floor (50%)	6%	0%	0%	9%
Floor (70%)	0%	0%	0%	12%
Rec (50%)	6%	0%	0%	9%
Rec (70%)	0%	0%	0%	12%
BTF-ACI (50%)	0%	0%	0%	9%
BTF-ACI (70%)	0%	0%	0%	9%

<sup>1.</sup> On-site incinerator estimates are for private facilities only. Government facilities are analyzed separately and are not expected to close as a result of th Hazardous Waste Combustion MACT.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE SHORT TERM

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	45,770	48,940	1%
Floor (50%)	0	0	3,170	46,210	49,380	1%
Floor (70%)	0	0	3,170	46,210	49,380	1%
Rec (50%)	0	0	3,170	46,210	49,380	1%
Rec (70%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (50%)	0	0	3,170	46,210	49,380	1%
BTF-ACI (70%)	0	0	3,170	44,070	47,240	1%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- 3. Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- 4. Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### QUANTITY OF HAZARDOUS WASTE THAT COULD BE DIVERTED FROM COMBUSTION FACILITIES IN THE LONG TERM

Price pass through assumed:

100%

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	TOTAL	Percentage of all BRS Combusted Hazardous Waste
Baseline	0	0	3,170	97,760	100,930	3%
Floor (50%)	11,530	0	3,170	106,270	120,970	4%
Floor (70%)	0	0	3,170	111,330	114,500	3%
Rec (50%)	11,530	0	3,170	106,270	120,970	4%
Rec (70%)	0	0	3,170	111,330	114,500	3%
BTF-ACI (50%)	0	0	3,170	106,270	109,440	3%
BTF-ACI (70%)	0	0	3,170	106,270	109,440	3%

- Combusted hazardous waste reported to BRS in 1995 excluding tonnage burned in on-site boilers: 3,300,000
- 2. Estimates do not include waste diverted from systems that consolidate waste into other systems at the same facility.
- Quantities of waste diverted under each option are upper-bound, total estimates. They are not incremental and may include waste from facilities non-viable in the baseline.
- Baseline quantities of waste diverted resulting from consolidation and market exit likely to occur in the baseline (i.e., without the MACT standards) are shown in the first row of the exhibit.
- 5. Totals may not add due to rounding.

### ESTIMATED SHORT-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

100%

MACT Option		nent Ins	LW	AKs		nercial erators		-site erators	то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	182	182	262	262
Floor (50%)	0	0	0	0	0	0	131	226	131	226
Floor (70%)	0	0	0	0	0	0	   131 	226	   131 	226
Rec (50%)	0	0	0	0	l 0	0	l 131 I	226	 131 	226
Rec (70%)	0	0	l 0	0	l 0	0	l 131	226	l 131 I	226
BTF-ACI (50%)	0	0	0 i	0	l 0	0	l 131 I	215	l 131 I	215,
BTF-ACI (70%)	0	0	l 0	0	l 0	0	l 131 I	226	l 131 I	226
·				i.					 	
					<b> </b> 		1		 	

- 1. Low-end estimates include employment losses associated only with those systems located at facilities where all systems stop burning. High-end estimates reflect all employment losses, including those associated with closing systems located at facilities where at least one system remains open. The low-end estimate assumes the possibility for employee reassignment within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED LONG-TERM EMPLOYMENT LOSSES AT COMBUSTION SYSTEMS (net of systems currently burning below their break-even quantity)

Price pass through assumed:

100%

MACT Option		nent Ins	LW	AKs		nercial rators	On- Incine		то	TAL
	Low End	High End	Low End	High End	Low End	High End	Low End	High End	Low End	High End
Baseline	0	0	0	0	80	80	345	408	425	488
Floor (50%)	21	21	0	0	0	0	· 90	108	111	129
Floor (70%)	0	0	0	. 0	0	0	98	116	98	116
Rec (50%)	21	21	l 0	0	0	0	90	108	111	129
Rec (70%)	0	0	l 0	0	0	0	98	116	98	116
BTF-ACI (50%)	0	0	0	0	0	0	90	108	90	108
BTF-ACI (70%)	0	0	l 0	0	0	0	90	108	90	108
			<b> </b>							
			1			1				

- Low-end estimates include employment losses associated only with those systems located
  at facilities where all systems stop burning. High-end estimates reflect all employment losses,
  including those associated with closing systems located at facilities where at least one system
  remains open. The low-end estimate assumes the possibility for employee reassignment
  within a facility that has combustion systems remaining open.
- 2. Estimates are sensitive to a number of assumptions, including the estimated number of employees associated with waste burning for each system.
- 3. Estimates are based on primary employment impacts only, and ignore secondary spill-over effects.
- 4. Employment impacts are national estimates.
- 5. Employment loss estimates are incremental, or directly attributable to compliance with the proposed MACT standards. These estimates do not include losses that are associated with systems that are non-viable in the baseline and therefore not directly attributable to compliance with the proposed MACT standards. Those baseline losses are provided separately in the first row of the above exhibit.
- 6. Compliance costs include CEM costs.
- 7. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	77	5	10	32	5	129
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	50	4	9	86	8	157
Permitting	1	0	1	4	1	7
Total	134	10	20	123	15	302

- 1. Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

FIr(70%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	ry					
Pollution Control Equipment	51	5	8	28	5	97
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	35	4	7	78	7	132
Permitting	1	0	1	4	1	7
Total	94	9	16	112	14	245

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indust	try					
Pollution Control Equipment	77	7	12	38	5	139
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	50	5	13	100	8	176
Permitting	1	0	1	4	1	7
Total	134	13	26	143	15	331

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- 2. Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

Rec(70%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	51	6	10	34	5	106
CEMs/Monitoring Equipment	6	0	0	2	1	8
Labor Within Combustion Sector						
O&M	35	5	12	91	7	151
Permitting	1	0	1	4	1	7
Total	94	11	23	131	14	273

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	99	10	22	94	13	238
CEMs/Monitoring Equipment	6	0	0	2	1	9
Labor Within Combustion Sector						
O&M	84	17	35	211	24	371
Permitting	1	0	1	4	1	8
Total	190	27	59	311	39	626

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### ESTIMATED EMPLOYMENT INCREASES ASSOCIATED WITH COMPLIANCE REQUIREMENTS AFTER SYSTEM CONSOLIDATION

**MACT Option:** 

BTF(50%)

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

	Cement Kilns	LWAKs	Commercial Incinerators	On-site Incinerators	Government On-site Incinerators	Total
Labor Within Pollution Control Indus	try					
Pollution Control Equipment	99	10	22	94	13	238
CEMs/Monitoring Equipment	6	0	0	2	1	9
Labor Within Combustion Sector						
O&M	84	17	35	211	24	371
Permitting	1	0	1	4	1	8
Total	190	27	59	311	39	626

- Estimates are sensitive to a number of assumptions, including the wage rates associated with compliance requirements and the percent of revenues generated due to each of the compliance requirements.
- Estimates are based on primary employment impacts only and ignore any secondary spill-over effects. Therefore, they do not account for job displacement across sectors as investment funds are diverted from other areas of the larger economy and should not be interpreted as net gains.
- 3. Employment impacts are national estimates.
- 4. Compliance costs include CEM costs.
- 5. Employment gains associated with systems currently not burning waste or that are currently non-viable in the baseline are not included in these estimates. Some additional systems may be non-viable in the baseline, leading us to overestimate employment gains due to compliance with the proposed MACT standards.
- 6. Totals may not add due to rounding.

### WEIGHTED AVERAGE COMBUSTION PRICE PER TON AND INCREASE IN PRICES DUE TO ASSUMED PRICE PASS THROUGH

Price pass through assumed:

100%

(percentage of median compliance costs for the most efficient sector)

Options	Cement Kilns	LWA Kilns	Commercial Incinerators	On-site Incinerators
Current weighted average price	\$172	\$136	\$689	\$729
Increase in price due to compliance c	osts passed thr	ough		
Floor (50%)	\$21	\$21	\$17	\$18
Floor (70%)	\$13	\$13	\$12	\$12
Rec (50%)	\$21	\$21	\$17	\$18
Rec (70%)	\$14	\$14	\$13	\$14
BTF-ACI (50%)	\$45	\$45	\$33	\$37
BTF-ACI (70%)	\$34	\$34	\$27	\$29

- 1. Compliance costs include CEM costs.
- 2. Median compliance costs per ton exclude systems currently not burning hazardous waste.
- 3. The commercial sector with the lowest total cost per ton (baseline + compliance cost) drives the assumed increase in combustion prices of waste categories managed by that sector.
- 4. Prices for on-site incinerators reflect the cost per ton of off-site treatment that generators avoid by burning the waste on-site.
- 5. Weighted average price per ton = (solids percentage of total waste burned in each sector x solids price) + (liquids percentage of total waste burned in each sector x liquids price) + (sludges percentage of total waste burned in each sector x sludges price).

PRELIMINARY ECONOMIC IMPACT RESULTS

# NEW COMPLIANCE COSTS AS A PERCENTAGE OF BASELINE COSTS OF HAZARDOUS WASTE BURNING (percentage of permitted combustion systems; see Note 3)

		-	Cement Kilns	su				LWAKs				Comme	Commercial Incinerators	erators			On-sit	On-site Incinerators	ors			Govern	Government On-sites	ites	
	<10%	10-20%	<10% 10.20% 21.50% 51.75% >75%	51-75%	>75%		10-20%	<10% 10-20% 21-50% 51	51-75%	>75%	<10%	10-20% 21-50%		51-75%	>75%	<10%	<10% 10-20% 21-50%		51-75%	>75%	<10%	10-20% 21-50% 51-75%	71-50% 5		>75%
																				-					
(1002)	90	ò	700	9	8	756	90	7002	26%	8	00 00 00	40%	40%	%	%	46%	13%	35%	707	%6	735%	33%	7007	8	, , ,
FIOOI (30%) 16%	<u>%</u>	0/D	0/ <b>7</b> 4	8 - 7	8	2	2	8	8/ 63	2	8	2	2	?	2	2	2	2	?	8	200	8	9/6	200	2
Floor (70%)	33%	18%	30%	15%	3%	13%	38%	38%	13%	%0	82%	2%	10%	%0	%0	46%	19%	29%	4%	2%	48%	19%	19%	2%	10%
Rec (50%)	15%	12%	39%	21%	12%	%0	%0	75%	25%	%0	%08	15%	2%	%0	%0	40%	13%	40%	4%	2%	33%	33%	19%	2%	10%
Rec (70%)	30%	18%	. 27%	18%	%9	%0	%0	%88	13%	%0	85%	10%	2%	%0	%0	40%	17%	37%	4%	2%	48%	19%	19%	2%	10%
BTF-ACI (50%)	%9	3%	33%	33%	24%	%0	%0	63%	13%	25%	40%	72%	2%	. %0	%0	21%	21%	46%	%9	%9	24%	14%	38%	10%	14%
BTF-ACI (70%)	24%	%6	18%	33%	15%	%0	%0	63%	25%	13%	%02	25%	2%	%0	%0	23%	25%	40%	%9	%9	33%	10%	33%	10%	14%

Compliance costs as a percent of baseline costs = [Total annual compliance costs/Total annual baseline costs?
 Total annual baseline costs = Annualized fixed capital and fixed operating costs + (Variable operating costs \* Hazardous waste burned).
 Percentages include systems not currently burning hazardous waste.

## NEW COMPLIANCE COSTS AS A PERCENTAGE OF HAZARDOUS WASTE BURNING REVENUES (percentage of permitted combustion systems; see Note 3)

		Cer	Cement Kilns					LWAKs				Comme	Commercial Incinerators	itors			on-si	On-site Incinerators	J.S	:
1	<10%	<10% 10-20% 21-50% 51-75% >75%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10%	10-20%	21-50%	51-75%	>75%	<10% 10-20%		21-50%	51-75%	>75%
						:									_					
Floor (50%)	48%	21%	30%	%0	%0	25%	20%	25%	%0	%0	%06	%0	· %0	2%	2%	52%	13%	19%	%4	12%
Floor (70%)	64%	18%	18%	%0	%0	38%	%09	13%	%0	%0	%06	%0	%0	2%	2%	%95	12%	17%	%8	%8
Rec (50%)	48%	21%	30%	%0	%0	%0	38%	%89	%0	%0	%06	%0	%0	2%	2%	25%	12%	17%	4%	15%
Rec (70%)	52%	30%	18%	%0	%0	%0	63%	38%	%0	%0	%06	%0	2%	%0	2%	26%	10%	15%	%8	12%
BTF-ACI (50%)	27%	27%	45%	%0	%0	%0	13%	75%	13%	%0	%06	%0	%0	2%	2%	40%	13%	23%	12%	12%
BTF-ACI (70%)	39%	30%	30%	%0	%0	%0	38%	%89	%0	%0	%06	%0	%0	2%	2%	44%	15%	19%	10%	12%

Compliance costs as a percent of revenues = [Total compliance costs per ton]/[Waste burning revenues per ton + Energy savings per ton]
 On-site incinerator revenues are equal to the costs generators avoid by not shipping the waste to a commercial incinerator (waste fees charged + transportation costs).
 High-end of range (>75 percent) includes systems not currently burning hazardous waste.

## CHANGE IN AVERAGE OPERATING PROFITS PER TON OF HAZARDOUS WASTE BURNED FROM THE PROPOSED MACT

Price pass through assumed:

100%

		Cement Kilns			LWA Kilns			Commercial Incinerators	_	č	On-site Incinerators	_
	Operating F	Operating Profit Margin	% Margin after	Operating P.	perating Profit Margin	% Margin after	ober	Operating Profit Margin	% Margin after	Operating P	Operating Profit Margin	% Margin after
Options	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule	\$ Change	% Change	the Rule
Floor (50%)	0\$ (	-11%	72%	(6\$)	-22%	20%	2.5	-1%	28%	(\$8)	%9-	%09
Floor (70%)	0\$	%/-	75%	(\$11)	-50%	92%	\$2	-1%	28%	(\$12)	-5%	%09
Rec (50%)	0\$	-11%	72%	(\$21)	-34%	43%	2.5	-1%	28%	(\$8)	%9-	%09
Rec (70%)	\$0	%8-	74%	(\$23)	-34%	43%	\$3	-1%	28%	(\$11)	%9-	%09
BTF-ACI (50%)	0\$	-21%	64%	(\$15)	-36%	41%	\$27	1%	26%	(\$5)	%8-	28%
BTF-ACI (70%)	80	-16%	%19	(\$19)	-37%	41%	\$18	%0	28%	(\$10)	%8-	26%

Operating Profits = (weighted average price per ton + weighted average energy savings per ton + assumed price increase due to compliance costs passed through) - (average baseline costs per ton + average but annual compliance cost per ton). Assumed price pass-through is a set percentage (shown at the top of this exhibit) of the median compliance cost for the most efficient combustion specied to ramial burning hazardous waste even mit burning the combustions as a steep median. This is a better approximation of the impetute combustions have to raise prices, though it is not a precise predictor. To address uncertainty regarding the amount prices will rise, a variety of price increase scenarios were used. All other averages were calculated after consolidation, and include only those systems that continue to burn hazardous waste.

Operating profits exclude overhead, other administrative costs, and taxes. Actual after-tax profits will be lower.
 Percentage Operating Profits again = average operating profits per ton / (weighted average price per ton + assumed price increase due to compliance costs passed through). Percentage profit margin = and prices, and prices, and prices.
 Change in operating profits and profits and prices and prices and prices.
 Change in operating profits margin in profits margin profits margin profits margin profits margin profits margin profits margin profits margin. Baseline operating profit margins for systems remaining open after consolidation can be calculated by dividing the percentage profit margin after the rule for each MACT option.